In this Issue: Failure of a Wrought Iron Standpipe at Waterloo, N. Y.—A Concrete Church in Brooklyn.—Sewage Purification at the Minnesota State Agricultural School—A Comparison of Formulas for Computing Stream Discharge.

ENGINEERING NEWS

Volume 59. No. 26.

220 Broadway, NEW YORK, THURSDAY, JUNE 25, 1908.

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Buyers' Reference, Page 26

Alphabetical Index of Advertisers, Page 27

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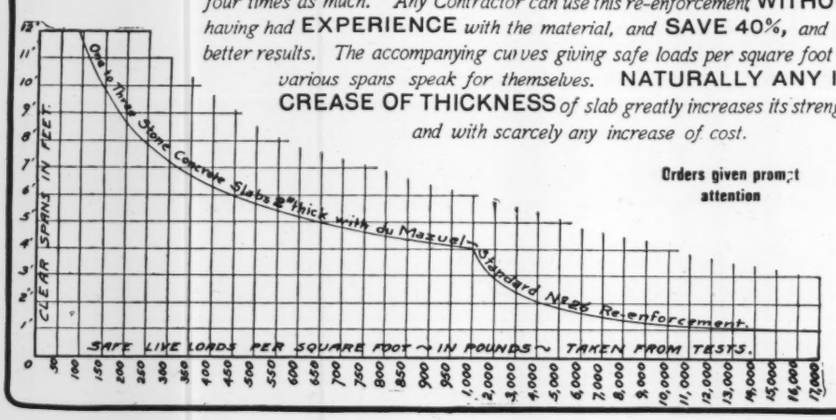
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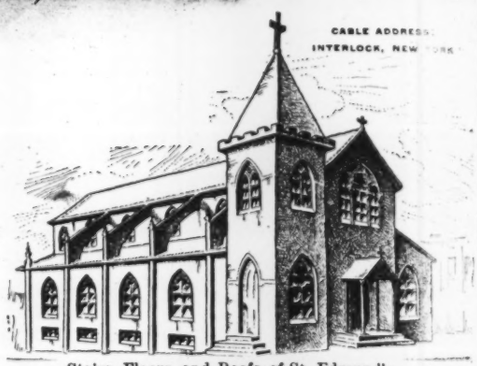
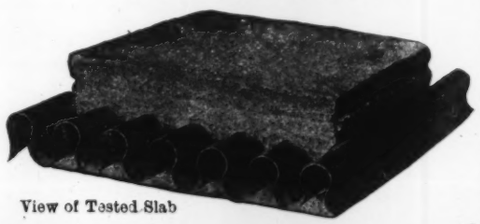


Stairs, Floors, and Roofs of St. Edmund's, of New York City, of our material



View of Tested Slab

Eng. News.

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FOR THE PAST TWO YEARS

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Minwax Vault Light Cement, when melted and poured into the joints, forms a perfect bond to all metal, glass, stone or concrete, rendering the joints absolutely tight, regardless of change of temperature, as it expands and contracts with the action of metal. Minwax Cement will not run or seep at 150° F., and is plastic at zero.

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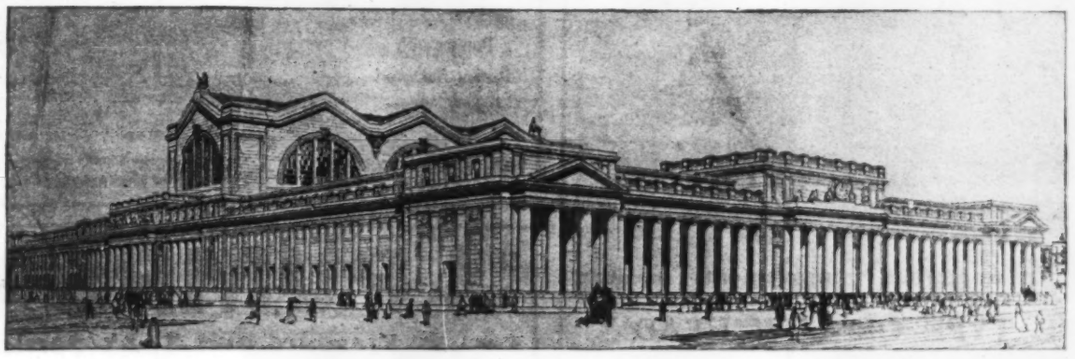

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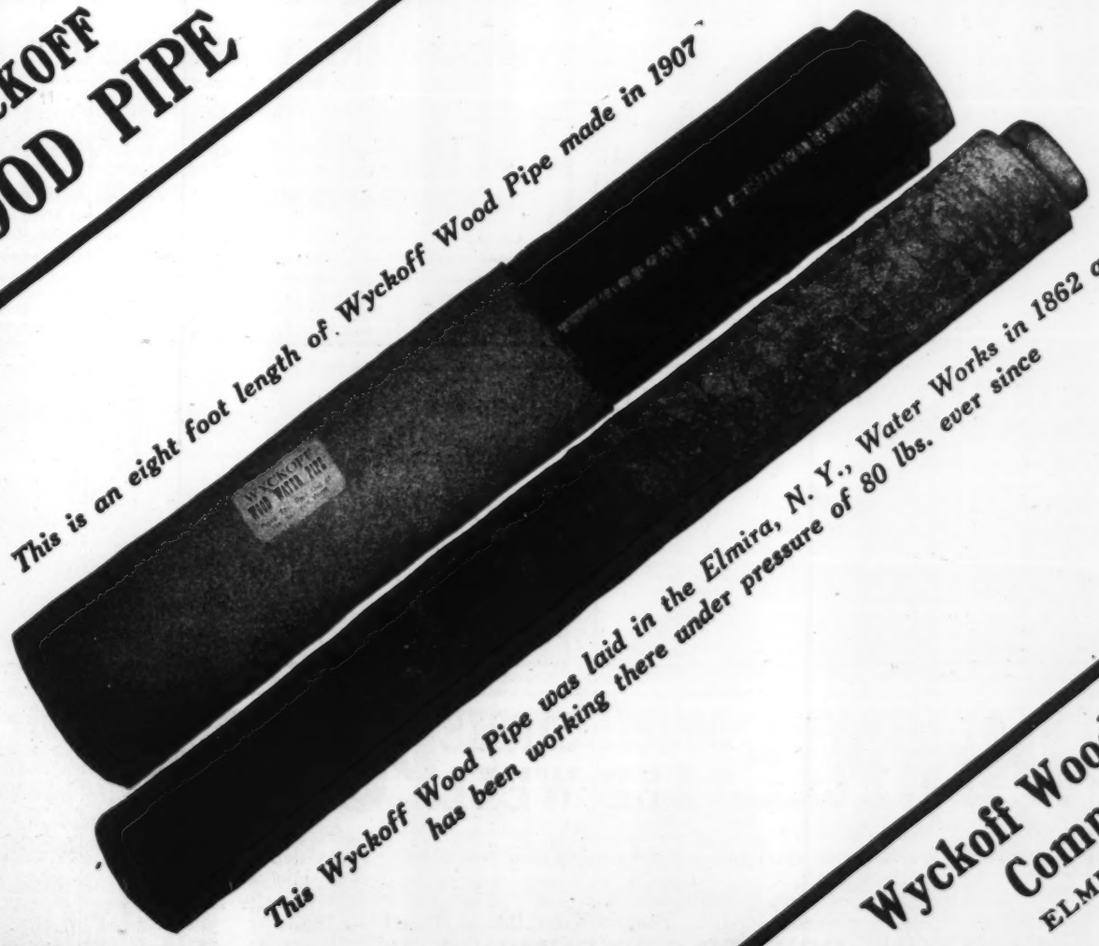
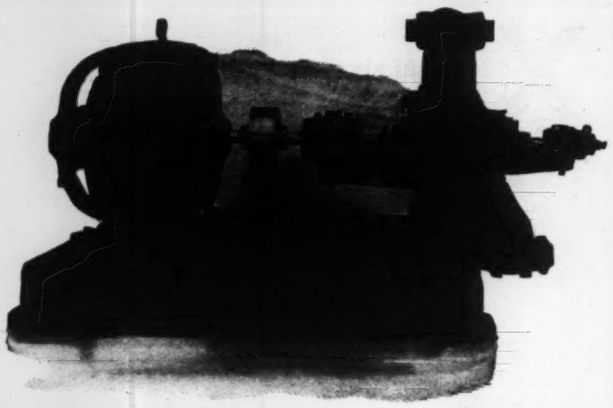


This is an eight foot length of Wyckoff Wood Pipe made in 1907

This Wyckoff Wood Pipe was laid in the Elmira, N. Y., Water Works in 1862 and has been working there under pressure of 80 lbs. ever since

Wyckoff Wood Pipe Company

ELMIRA, N. Y. U. S. A.



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CENTRIFUGAL PUMP

as illustrated in the accompanying cut. Note particularly the independent ring oil bearings, which construction enables the pump to be operated at high speeds without heating, and, furthermore, prevents grit from wearing out the bushings.

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Pumping Machinery for Every Service
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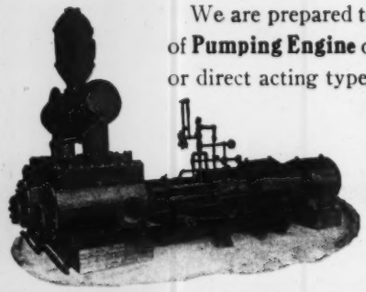

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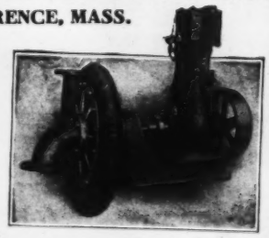

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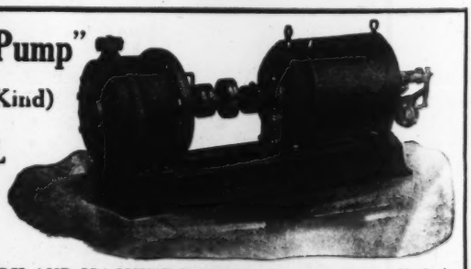

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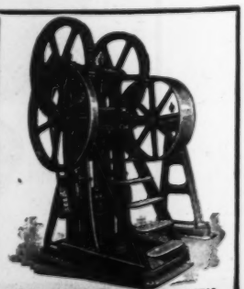

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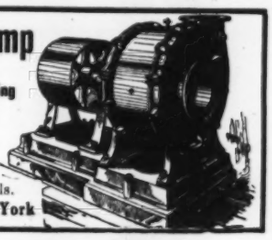

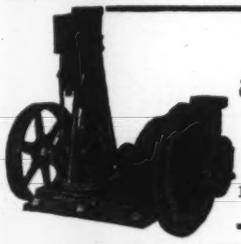

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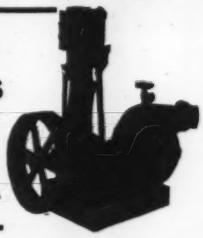

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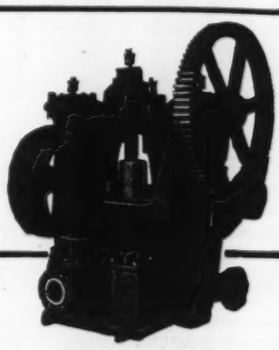

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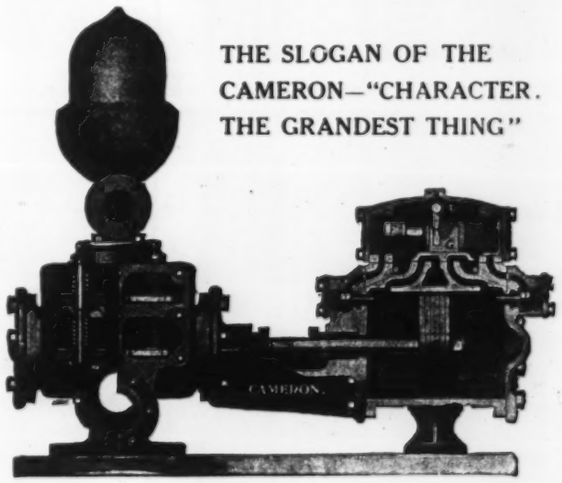
THE SLOGAN OF THE CAMERON—"CHARACTER. THE GRANDEST THING"



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Cameron Pumps are as reliable, efficient and long lived as 50 years' experience can make them. They run for years and years under conditions that would knock the "cheap varieties" out in no time, and their repairs are reduced to the minimum.

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STEAM AND HYDRAULIC TURBINES OF SPECIAL DESIGN
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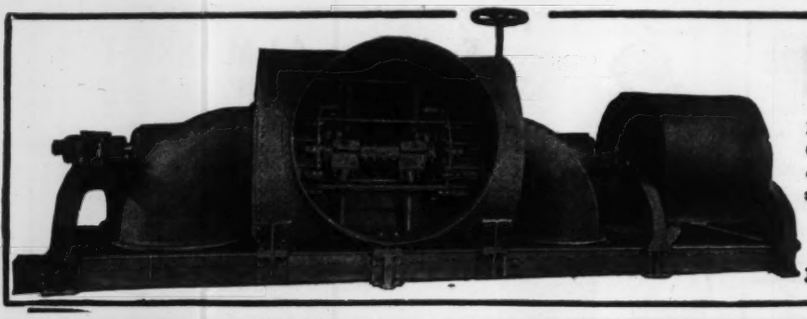

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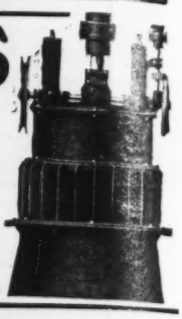

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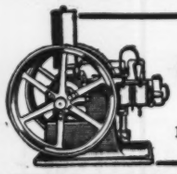

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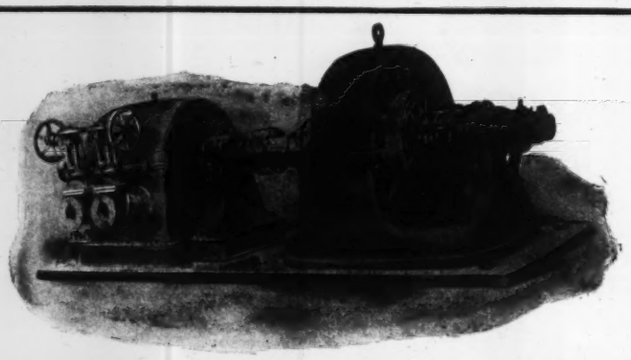

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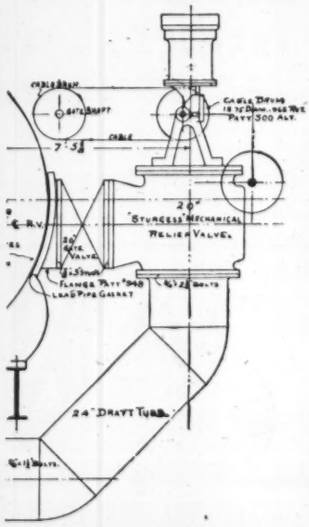

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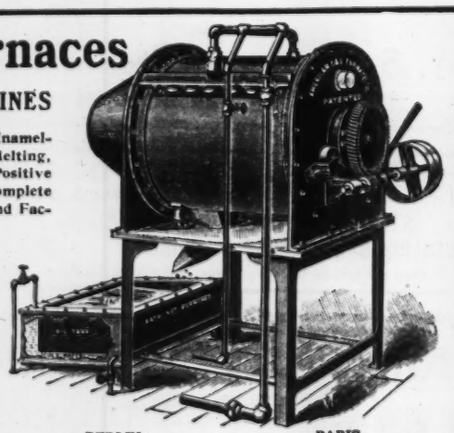

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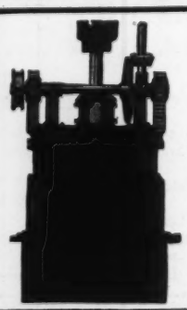

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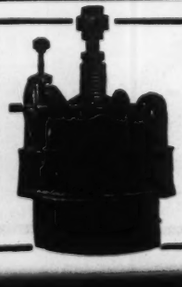

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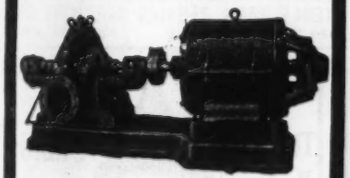

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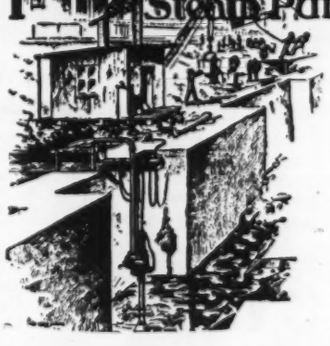

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where you will, on a beam, derrick boom, tripod or set it anywhere without special foundation, then turn on the steam—no engine, belt, oil, packing, special foundation or further attention required.

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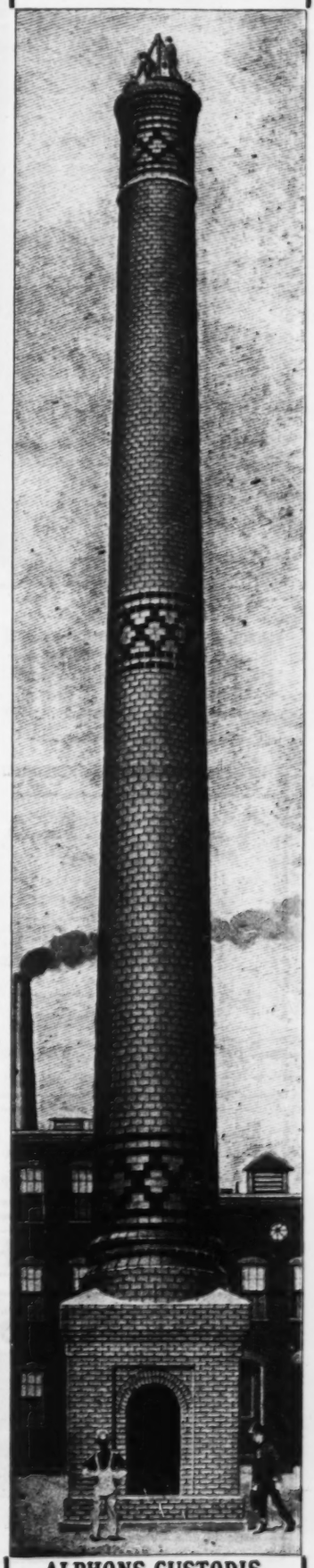

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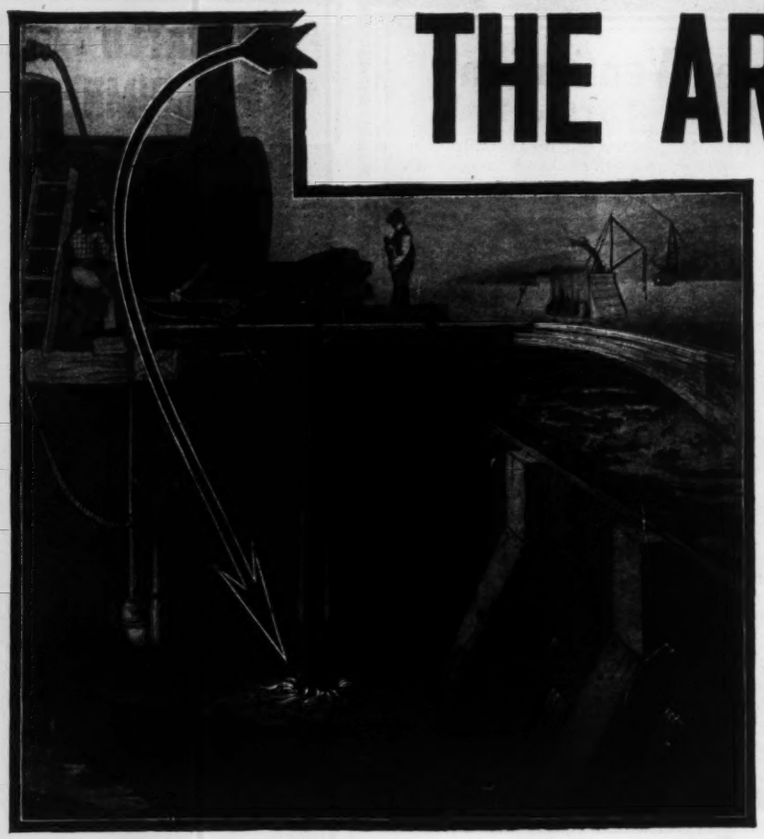

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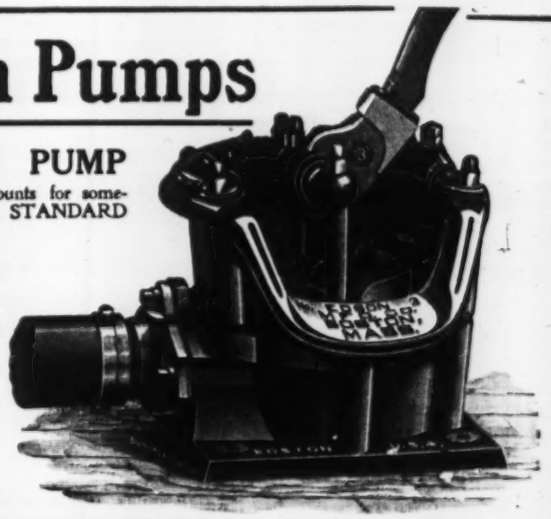

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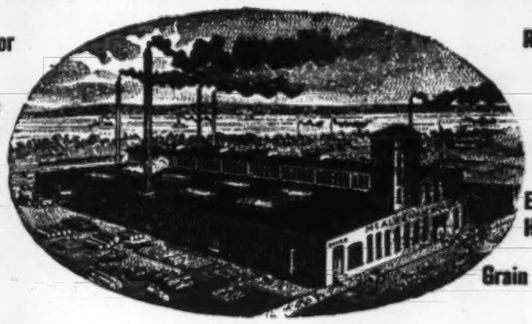

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The photograph shows the housing and also the manner in which the bearings are protected from the hot gases. Notice that the bearings are not outside the housing, but are set as far in as possible in order to reduce the "overhang." This practice is one of the reasons for our success with overhung wheels.

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Engineers; Builders of Green's Fuel Economizers, Fans, Blowers and Exhausters, Steam Air Heater Coils, Waste Heat Air Heaters, Mechanical Draft, Heating and Ventilating and Drying Apparatus, Draft Dampers and Engines. 47

EVER CLEAN TUBES? OR HAVE TO REPLACE ANY BECAUSE OF SCALE?

When you come to figure up what dirty boilers cost, it runs into quite a surprising sum of money.

First, counting men's wages, wear and tear on cleaning tools, wear and tear on boilers, time that boilers are laid off from active duty, and coal required to heat them up to steam pressure again, cleanings may cost easily $1.00 per HP. for each cleaning.

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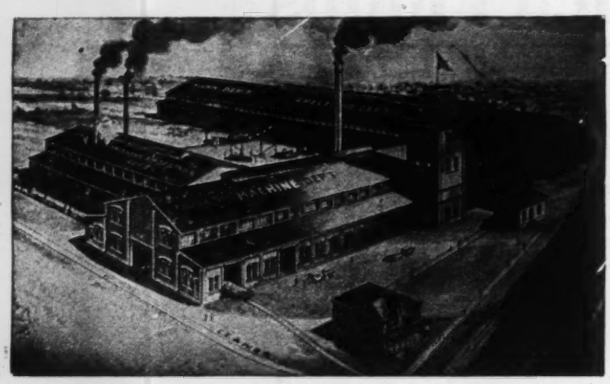

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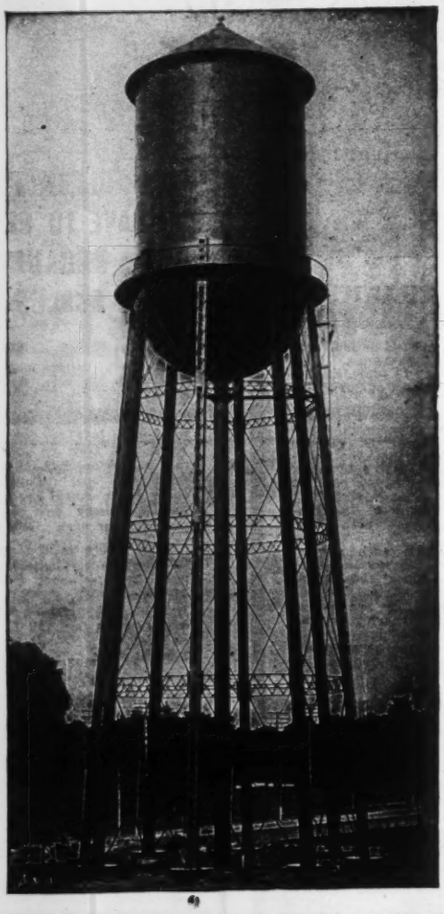

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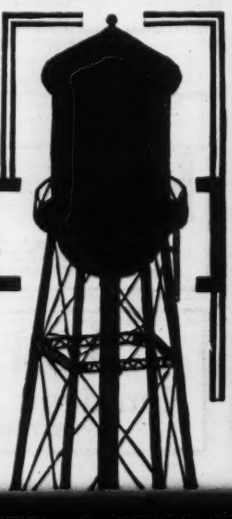

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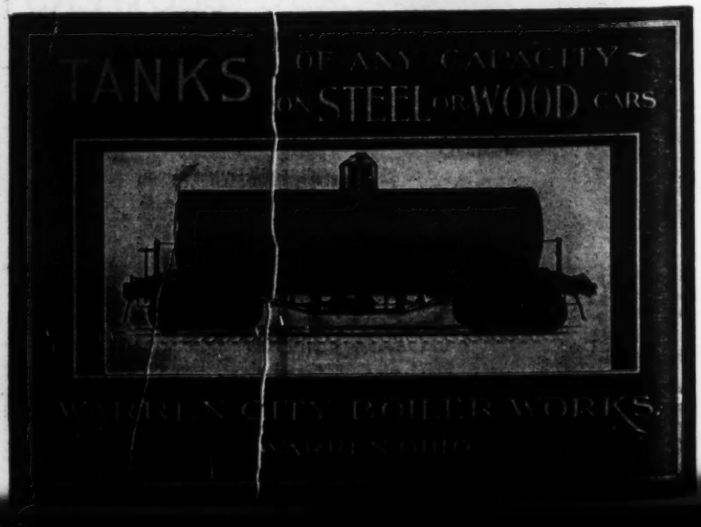

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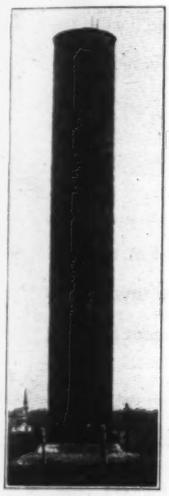

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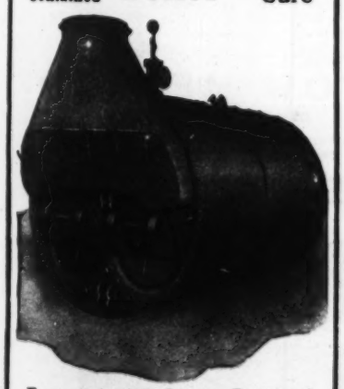

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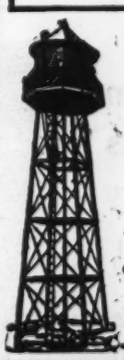

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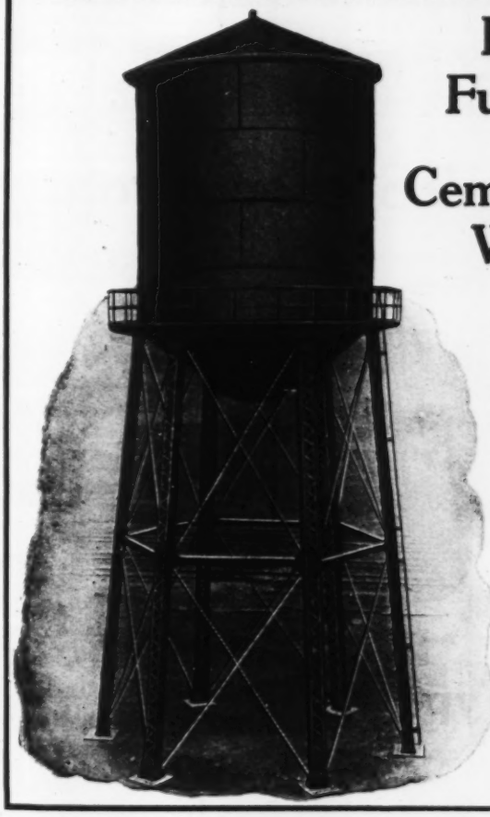

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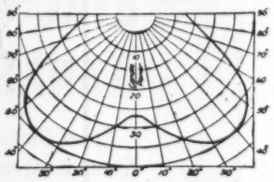

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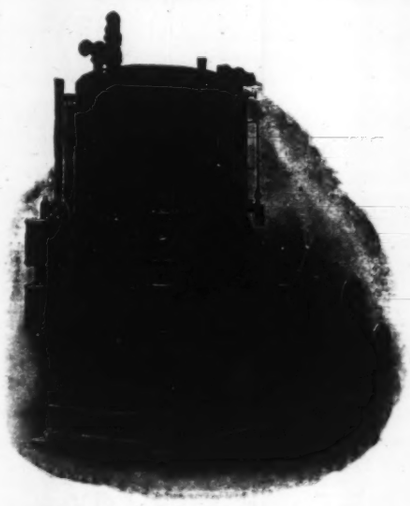

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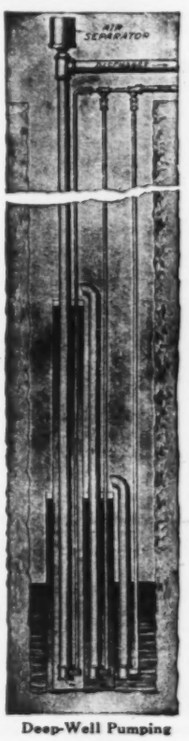

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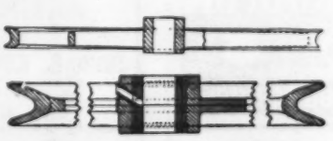

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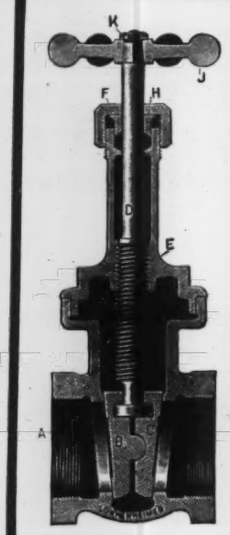

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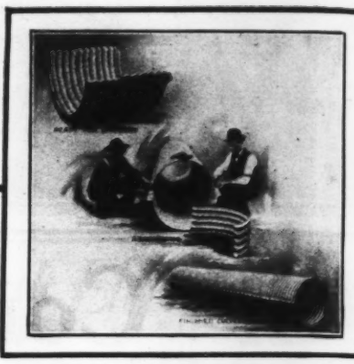

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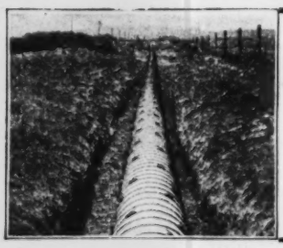

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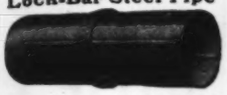

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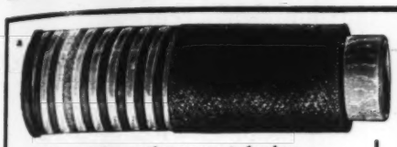

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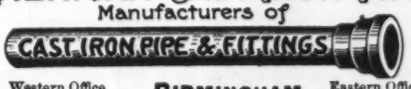

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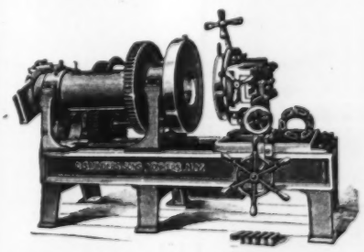

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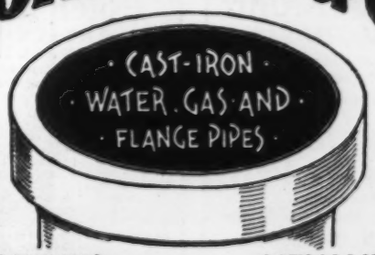

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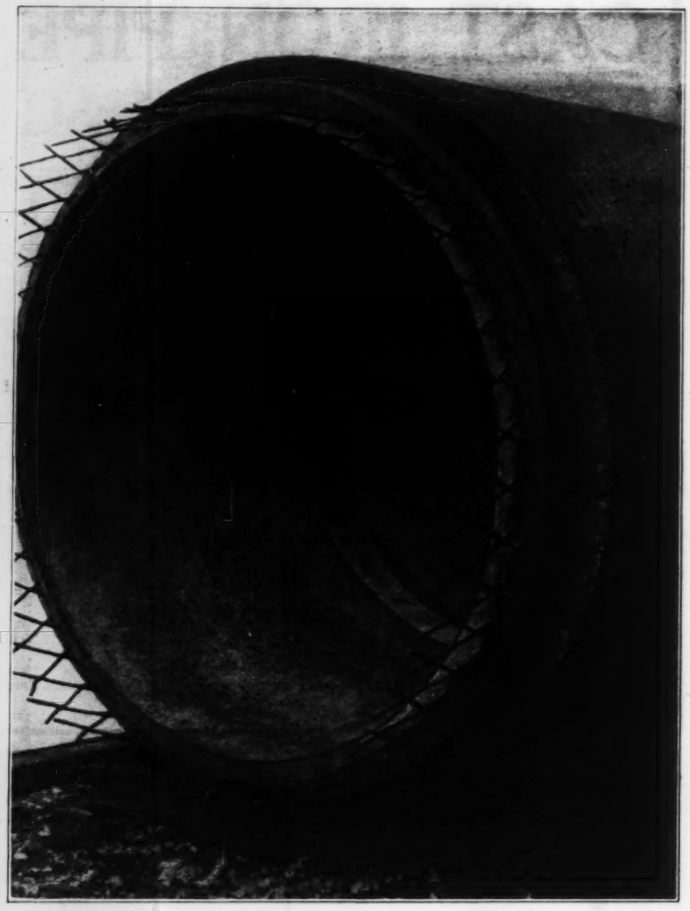

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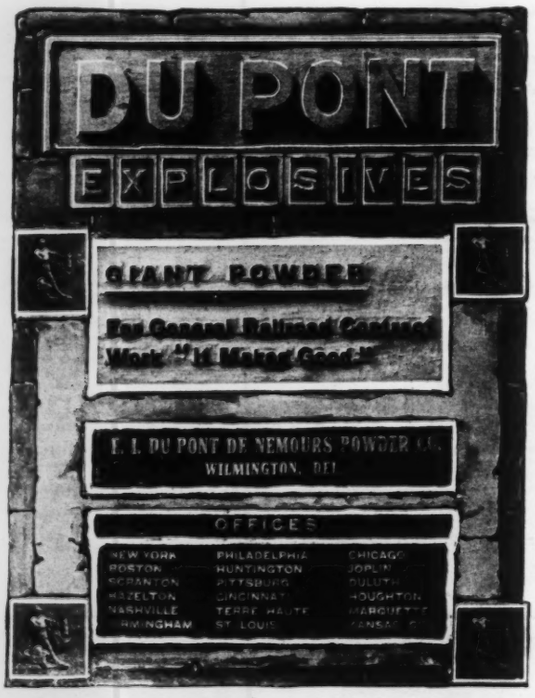

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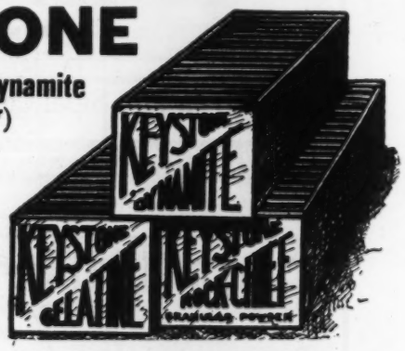

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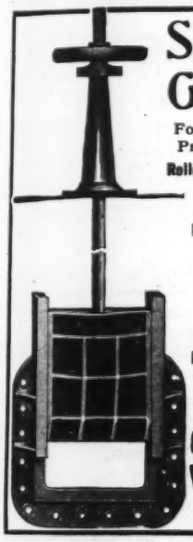

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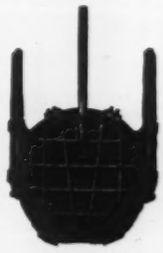

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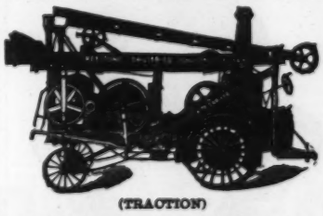

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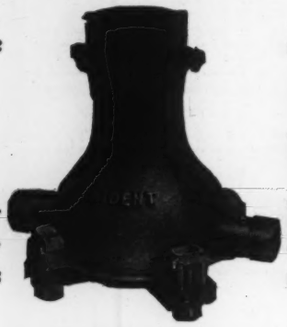

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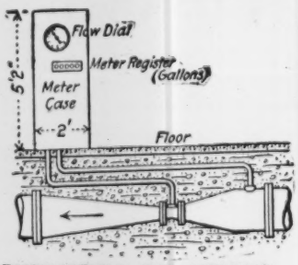

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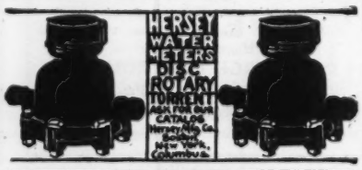

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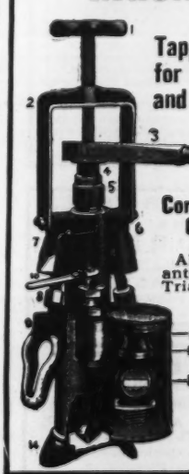

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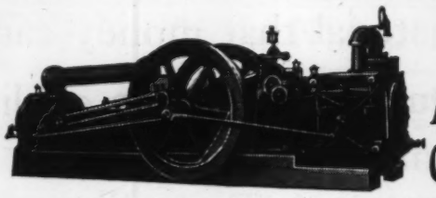

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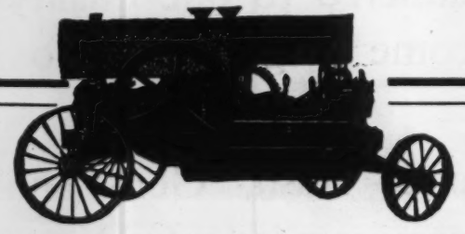

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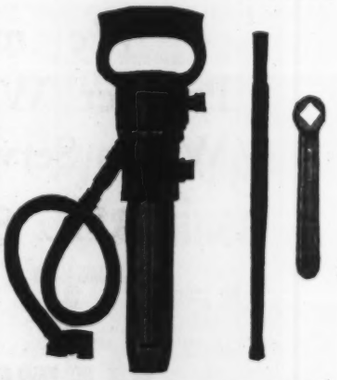

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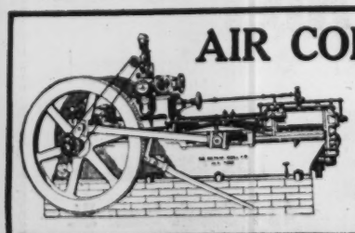

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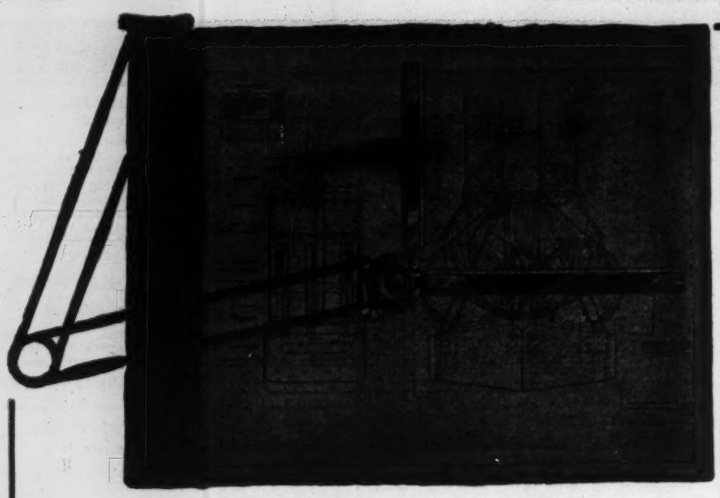

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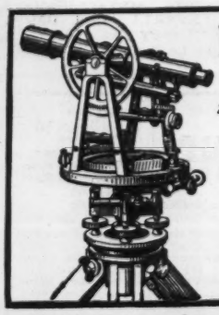

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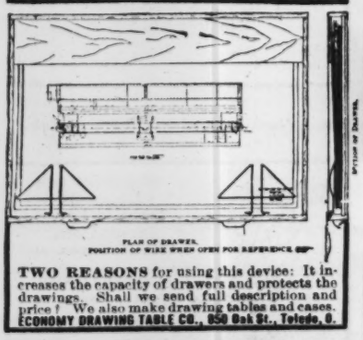

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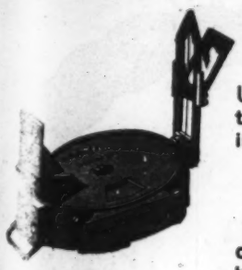

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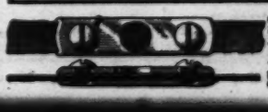

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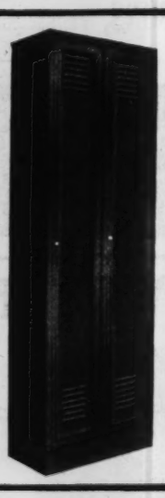

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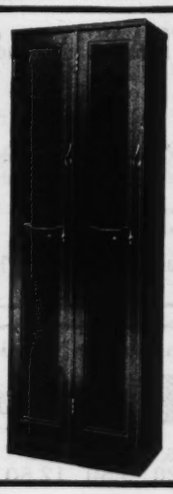

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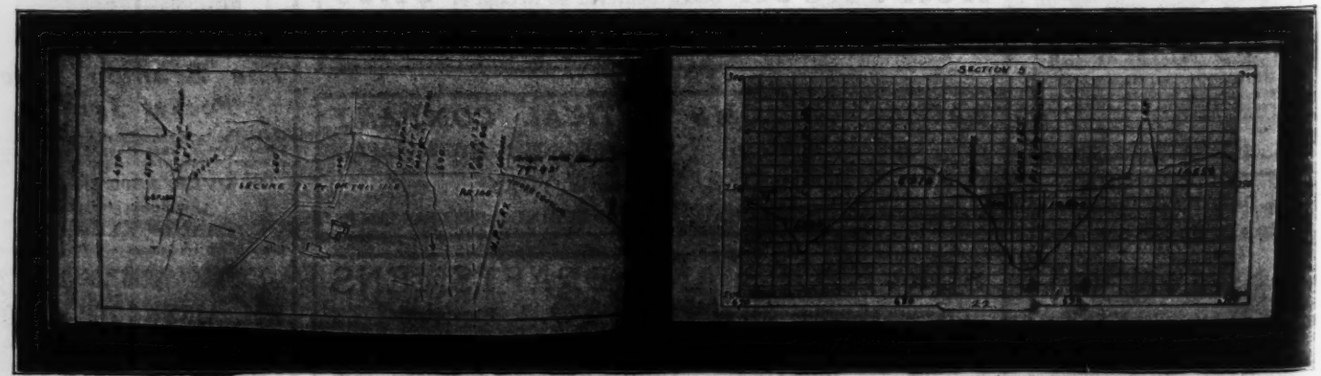

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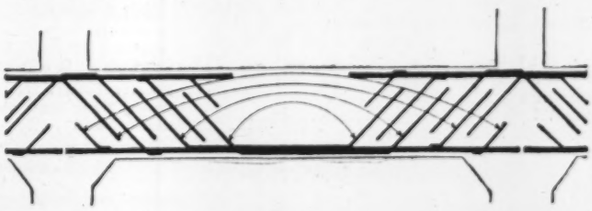

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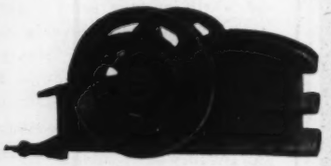

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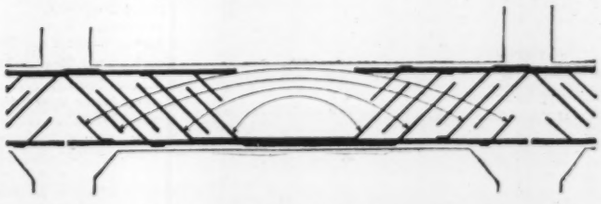

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Air Brakes 13
Air Compressors.....4, 5, 12, 13, 20, 21, 58
Air Gages, Receivers, Tanks, Etc.....14, 80
Aluminum 38
Architects 28, 29
Architects' Supplies. (See Engineers' Supplies.)
Artesian Wells, Tools and Pumps.
4, 5, 12, 17, 18, 38, 44
Artesian Wells—Contractors' 17
Asphalt 1, 49, 61, 63, 74
Asphalt Machinery, Tools and Paving Plant.....48, 66
Ballast Unloaders and Spreaders.....35, 54, 60, 62, 65
Bearings—Oilless 31, 54, 58
Belting—Chain, Link, Canvas, Etc. (See also Coal Handling).....1, 58, 59, 66
Blast Hole Loaders..... 17
Blast Furnaces and Fittings.....6, 7, 10, 11, 14, 60, 76
Blocks.....7, 54, 56, 76
Blowers and Bellows.....1, 7, 9
Blue Print Apparatus and Paper.....21, 22, 23
Boiler Fittings, Mountings and Parts..1, 8, 11, 14, 54, 55
Boilers..4, 5, 7, 8, 9, 10, 11, 12, 14,
15, 43, 54, 55, 57, 62, 76
Bolt and Rivet Cutters..... 20
Bolts—Expansion Toggle, Etc.....38, 44
Bolts—Machine 38
Brick—Fire and Tile.....1, 14, 49, 80
Brick—Sand and Paving.....1, 43, 48, 49
Brick—Sand-Lime 1
Brick-Making Machinery 48, 66
Bridges, Roofs, Trusses, Etc.
10, 21, 43, 70, 74, 75, 76, 77, 78
Bridges—Bascule 76, 78
Buckets—Coal, Ore, Dredging, Etc.
54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66
Bumping Posts 36
Cableways—Suspension Wire Rope....54, 55, 56, 60, 62
Caissons.....11, 12, 15, 75
Calculating Machines 23
Car Heating and Lighting..... 36
Car Couplers.....1, 35, 36, 37
Car Parts and Fittings.....1, 35, 36, 37
Cars.....35, 36, 37, 44, 46, 58, 59
Cars—Second-Hand. (See Second-Hand Supplies.)
Cars—Tank 10
Carts and Wagons—Contractors'....44, 45, 48, 49, 51, 53
Castings and Forgings—Iron—Steel.
4, 9, 11, 15, 17, 21, 24, 38, 55, 58, 76
Castings—Manganese Steel 13
Cement Block Machines..... 68
Cement-Making Machinery.
10, 13, 24, 37, 46, 59, 66, 67, 68
Cement—Natural and Portland.....1, 66, 67, 68, 80
Cement Waterproofing 67, 70
Chain Blocks 54
Channeling Machines 20
Chemical Laboratories 1, 20
Chimneys—Brick 7
Chimneys—Concrete 72
Chimneys—Iron and Steel.5, 7, 8, 9, 10, 11, 12, 14, 15, 76
Chutes—Mail 38
Coal and Ore Handling and Conveying Machinery, Etc.....24, 35, 37, 54, 55, 57, 58, 59, 60, 61, 62, 66, 76
Computing Machines 23
Concrete Mixers and Machinery.
44, 47, 50, 51, 52, 53, 54, 67
Concrete Construction....1, 2, 24, 25, 71, 72, 73, 74, 75
Condensers 4
Conduits—Creosoted Wood. (See Creosoting.)
Conduits—Fiber 14
Conduits—Vitrified Clay.....1, 14, 44
Contractors—14, 15, 25, 33, 37, 43, 47, 50,
52, 63, 64, 65, 72, 73, 74, 75, 76, 77, 80
Converters and Cooling Towers....4, 5, 9, 10, 11, 12, 60
Conveyors and Conveying Machinery. (See Coal and Ore Handling.)
Cornices 74
Countershafts 4, 38
Couplings—Friction Clutch.....54, 57, 58, 62
Cranes.....54, 57, 58, 60, 62, 76
Creosoting 15, 63
Crushers and Pulverizers..24, 37, 46, 49, 58, 66, 67, 68
Crusher Parts—Manganese Steel..... 13
Culverts—Metal 14
Cupolas—Foundry 1, 10, 11
Curb Boxes and Molds.....14, 38
Dams—Concrete Steel 73, 75
Derails 36, 37
Derricks and Derrick Fittings.
53, 54, 55, 56, 57, 60, 61, 62, 77, 80
Ditching Machinery..33, 44, 46, 47, 50,
52, 54, 55, 61, 62, 63, 64, 65, 80
Divers 28
Diving Apparatus 63
Doors and Shutters..... 38
Dredges.....37, 54, 63, 64, 65
Dredging Contractors.....37, 50, 63, 64, 65, 75
Drills—Diamond 20
Drills—Rock and Ore.....12, 17, 20, 38, 54, 58, 67
Dryers and Drying Apparatus.....7, 9, 66, 67, 68
Dynamite, Explosives, Exploders.....16, 53
Economizers. (See Fuel Economizers.)
Electrical Machinery, Dynamos, Etc.....7, 12, 13, 20
Elevators—Coal, Rock and Ore. (See Coal and Ore Handling.)
Elevators—Grain Storage.....10, 58, 59, 77
Employment Bureaus 30, 32
Engineers—Civil, Consulting and Mechanical.....28, 29
Engineers' Supplies, Instruments, Clocks, Etc.
21, 22, 23, 32
Engines—Gas, Gasoline and Oil.....6, 17, 19, 20
Engines—Hoisting.....6, 24, 54, 55, 56, 57, 58, 62
Engines—Pumping.....4, 5, 7, 8, 12, 15, 38
Engines—Stationary.....4, 5, 6, 7, 8, 9, 12
Engines—Traction 48
Exhaust Heads.....5, 7, 14, 15
Expanded Metal 25, 70, 79
Excavating Machinery. (See Ditching Machinery and Steam Shovels.)
Fans—Exhaust. (See Ventilating.)
Feed-Water Heaters and Purifiers.....4, 8, 9, 10, 11, 76
Fence—Wire 76
Filters—Grease and Oil.....9, 80
Filters—Water 44, 80
Fire Department Supplies.....14, 63
Fireproof Construction—Steel.
1, 14, 25, 38, 69, 70, 71, 72, 73, 74, 75, 76, 79
Fireproofing Materials.
1, 5, 14, 24, 25, 38, 57, 69, 71, 72, 74
Fire Extinguishers—Automatic 11, 63
Flush Tanks 43
Forges—Blacksmiths' and Portable..... 7
Forgings. (See Castings.)
Foundry Equipments and Supplies..7, 9, 10, 11, 12, 54
Frogs and Switches—Railway.....32, 34, 35, 36, 37
Fuel Economizers 7, 9
Furnaces—Gas, Lead Melting and Smelting..... 6
Furniture and Office Fittings.....22, 23
Garbage Disposal 66
Gas Machinery, Fittings and Fixtures, Compressors, Etc.....6, 14, 20, 60
Gaskets—Bronze and Copper.....1, 5, 14, 38
Gates—Sluice 4, 17, 18
Gages. (See Steam Specialties.)
Gearing 13, 54, 58, 59
Governors—Water-Wheel 6
Graders and Scrapers—Earth. (See Road Machinery.)
Granite 49
Graphite and Belt Dressing.....1, 38, 77
Hangers—Joist 54, 58
Heaters—Electric 5
Hoists.....1, 24, 54, 55, 56, 57, 59, 60, 61, 62, 65
Hose and Fittings.....9, 20
Hydrants and Street Washers. (See Valves.)
Hydraulic Rams 5
Ice and Refrigerating Machinery..... 5
Injectors and Inspirators.....7, 14
Inspection of Building Materials.....1, 20
Instruments—Engineering, Surveying and Mathematical. (See Engineers' Supplies.)
Instruments—Indicating 80
Instruments—Recording 80
Jacks—Hydraulic and Screw.....7, 36, 38
Joints—Expansion 17
Joints—Flexible 7, 14
Kilns—Cement. (See also Dryers.)
10, 24, 37, 46, 60, 66, 67, 68
Ladles—Foundry 1, 10, 11, 54
Lamp Posts 4, 15, 76
Lamps and Lanterns—Railway.....12, 36
Lights—Sidewalk and Vault. (See Skylights.)
Lights—Contractors 11
Lockers—Steel 24
Locomotives—Compressed Air 37
Locomotives—Electric 12, 37
Locomotives—Geared 34, 37
Locomotives—Industrial and Light. (See also Second-Hand Supplies).....32, 34, 35, 37, 54
Locomotives—Steam 37
Logging Outfits and Machinery.....34, 48, 58, 62, 65
Lubricators. (See Steam Specialties.)
Machine Tools 20, 21, 36
Meters, Meter Boxes and Fittings..4, 7, 12, 18, 19, 38, 80
Mineral Wool 1, 5
Mining and Mill Machinery and Supplies. (See also Coal and Ore Handling)....8, 20, 24, 37, 46,
48, 54, 58, 59, 60, 62, 65, 66, 67, 68
Mixers—Cement, Asphalt and Mortar.
37, 47, 50, 51, 52, 54, 66, 67, 68
Motors—Compressed Air 20, 58
Motors—Electric 9, 12
Motors—Water and Steam. (See Turbines.)
Nuts and Nut-Locks.....38, 44, 78
Ornamental Iron Work. (See Bridges.)
Packing—Flange and Joint.....5, 7, 38
Paint, Varnish, Metal Coatings.....1, 3, 38, 77
Paper, Blue Print and Apparatus. (See Blue Print Apparatus.)
Patent Lawyers..... 43
Paving Blocks—Stone 49
Paving Blocks—Wood. (See Creosoting.)
Pile Drivers, Hammers and Jets.
54, 55, 56, 61, 62, 64, 74, 76
Pile Shoes 9, 74
Piles and Piling—Concrete.....72, 75, 77
Piles—Interlocking 51
Pipe Covering 5
Pipe—Iron and Steel.....4, 15, 38, 43
Pipe—Lead 15
Pipe—Reinforced Concrete 16
Pipe—Riveted Steel.....9, 10, 15, 43
Pipe—Vitrified Clay and Sewer.....1, 14, 48, 49
Pipe—Welded Steel 14
Pipe—Wooden..... 14, 15
Pipe Cutting and Threading Machines..... 15, 18
Pipe Fittings (Brackets, Hangers, Repair Sleeves, Strainers, Etc.)..... 15, 18
Pipe Joints—Flexible Water Pipe and High Pressure Pipe 14, 15
Pipe Line Supplies.....38, 61
Plows—Contractors'. (See Road Machinery.)
Pneumatic Conveyors 58
Pneumatic Tools, Riveters, Clippers, Etc.....21, 58
Poles and Posts—Iron and Steel, Trolley Poles.....15, 76
Power Transmission Machinery.....13, 58, 59
Pulleys and Blocks.....7, 54, 55, 62, 76
Pulverizers. (See Crushers.)
Pumps—Air Lift and Artesian.....4, 5, 17, 20
Pumps—Boiler Feed 4, 5
Pumps—Centrifugal 1, 5, 7
Pumps—Diaphragm 7, 9
Pumps—Mine 5, 7, 8
Pumps—Turbine 4, 5, 7
Pumps—Vacuum 5, 20
Pumps—Well.....5, 7, 8, 17, 38
Pumps—Windmill 4, 10, 12, 17
Pyrometers—Electric 80
Railings, Guards, Fences, Etc..... 76, 78
Rails.....32, 35, 37
Rail Joints, Fastenings, Etc..... 36
Rails—Second-Hand. (See Second-Hand Supplies and For Sale Ads.)
Railway Track Specialties and Equipment.
32, 35, 36, 57, 58, 74
Railways—Industrial and Narrow Gage. (See Cars and Locomotives.)
Reinforced-Concrete Construction. (See Fireproof Construction.)
Riveters. (See Machine Tools.)
Road Machinery, Road Rollers, Plows, Screens, Etc.
24, 34, 44, 48, 49
Rolling Mill Machinery.....54, 60
Roofing.....1, 5, 38, 57, 58, 74
Rope Fittings, Couplings and Cordage.....55, 60, 62
Rules and Tapes.....22, 23
Scale Boxes 61
Scrapers—Road. (See Road Machinery.)
Schools and Colleges..... 21
Second-Hand Supplies and Agents..32, 33, 34, 35, 37, 54
Separators—Steam, Grease and Oil.....7, 8, 9
Sewage and Garbage Disposal and Septic Tanks....43, 44
Sewer Appliances and Specialties.....9, 17, 44
Sheaves for Wire Rope, Hoisting.
7, 11, 54, 55, 56, 58, 76
Sheet Iron and Sheet Metal Work.....8, 11, 12, 14, 61
Sheeting Steel 72
Shovels and Picks—Hand.....32, 38, 43
Shovels—Steam.....33, 37, 54, 62, 63, 64, 65
Signaling Apparatus 12
Skylights and Sidewalk Lights.....74, 76
Standpipes and Tanks. (See also Tanks and Towers.)
8, 11, 12
Steam Specialties.....7, 8, 9, 13, 14, 15, 18, 80
Stokers—Mechanical 8, 13
Stone—Broken, and Quarries.....48, 49
Strainers—Well 8, 17
Street Cleaning Implements.....24, 46, 48
Structural Steel Work. (See Bridges.)
Superheaters—Steam 4, 8
Switch Stands and Switches. (See Frogs.)
Tanks—Gas and Oil.....7, 9, 10, 11, 12, 43
Tanks—Grain and Storage.....9, 10, 11, 12, 58, 77
Tanks—Septic. (See Sewage Disposal.)
Tanks and Towers.....10, 11, 12, 14, 15, 43, 76
Tapes—Steel. (See Rules and Tapes.)
Tents and Awnings..... 44
Testing Laboratories 1, 21
Testing Machines and Scales..... 8, 68
Ties—Steel and Wood. (See Railway Track Specialties.)
Tipples and Bunkers.....58, 59, 60, 78
Tools—Calking 18, 20
Track—Portable 32, 35, 37
Trench Braces 46
Trolleys 54
Trucks—Foundry and Warehouse..... 7
Turbines—Steam 5, 6, 7, 12, 13
Turbines—Water 5, 6, 7
Turnbuckles.....38, 57, 60, 62, 74
Turntables.....1, 35, 37, 58, 59, 76, 77, 78
Valves and Valve Boxes.....4, 5, 7, 8, 14, 15, 17, 18
Ventilating Apparatus.....1, 6, 9, 12
Ventilators 74
Wagons—Dump. (See Carts.)
Water Power Plants and Equipment....6, 14, 54, 60, 75
Waterproofing. (See also Asphalt and Paint)....1, 3, 74
Waterproofing Materials 2, 67, 70
Water Softening Plant.....6, 8, 9, 75, 80
Well Drilling. (See Artesian Wells.)
Wheelbarrows—Iron, Steel and Wood Plows, Etc.
44, 54, 61
Wheels—Chilled 35
White Portland Cement..... 67
Windmills. (See Pumps—Windmill.)
Winches 54
Wire Rope and Aerial Tramways. (See Cableways.)

CATALOGS covering our advertisers' manufactures are on file and may be consulted at the New York Office of Engineering News.

ALPHABETICAL LIST OF ADVERTISERS

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... Works... 20
Abenaque... ot Mfg Co... 15
Abendroth... 28
Ackerman... 28
Adams, H... *16
Aetna Po... & Sons... 23
Ainsworth... y Bureau... 28
Albany Sa... 4
Alberger... Co... 21
Albree, Cl... B... 28
Albright &... bus... 23
Alexander... B... *68
Alexander... n Works... *20
Allen, Joh... 1
Alma Cem... Co... 66
Alpha Por... d Cement... 80
Alsen's P... e & Sons... 23
Alsteneder... of America... 38
Aluminum... W... 28
Alvord, Jo... d Const Co... *73
Amburser... Compressor Wks 20
American ... m & Rubber Co... 1
Am Asphal... wer Co... 9
American... dge Co... 78
American... sp & Tests... 21
Am Bures... Pipe Co... 15
Am Cast I... Pipe Co... 80
American... ment Co... 48
Amer Clay Machy Co... 28
Am. Coner... Caisson Co... 28
Am Creosoting Co... 63
Am Distric... Steam Co... 7
Am. Dittlee Sewage Dis. Co... 28
Am Drafting Furniture Co... 22
American Gas Furnace Co... *6
Am Hoist & Derrick Co... 55
Am Hydraulic Stone Co... 68
American Locomotive Co... 37
American Mfg Co... *56
American Pipe Mfg Co... 15
American Process Co... 66
American Ry Supply Co... *38
Am School of Corres... 16
American Spiral Pipe Works... 14
American Steel & Wire Co... 71
American Steel & Wire Co... *70
Am System of Reinforcing... *9
American Water Soft Co... 14
American Welding Co... 14
Anchor Post Iron Works... *76
Archbald, James... 28
Architects & Engrs Sup Co. 22-32
Armour Institute... 21
Arnold, B J... 28
Arnold Co... 28
Arnold & Andrews... *49
Arthur, W H... 28
Asserson, Henry B... 28
Assoc Expanded Metal Cos... 70
Atherton Bucket Co... *60
Atlantic Creo & Wood Pres Co 63
Atlantic Equipment Co... 35-65
Atlantic Gulf & Pacific Co... 65
Atlas Car & Mfg. Co... 35
Atlas Dryer Co... 66
Atlas Portland Cement Co... 80
Austin Drain. Exavator F C... 50
Austin Mfg Co... 67
Austin-Western Co... 48
Avery, Chas F... 32
Avery Company... *48

Babcock & Wilcox Co... 9
Backus Water Motor Co... 6
Bacon, Earle C... 24
Balcom & Darrow... 28
Baldwin Locomotive Works... 37
Baltimore Bridge Co... 77
Baltimore Cooperage Co... 11
Barber Asphalt Co, A L... 49
Barber Asphalt Pav Co... 63
Barbour F A... 28
Barnard & Leas Mfg Co... 6
Barrett Mfg Co... *2
Bartlett & Co, A F... *55
Bartlett, C O & Snow Co... 66
Bausch-Lomb, Saegmuller Co 23
Beach, Henry T... 28
Beard Dredging Co, W H... 63
Beatty, M & Sons... 54
Belmont Iron Works... *38-76
Bergdoll & Pawling... 76
Bergen Point Iron Works... *47
Berger, C L & Sons... 22
Berger Mfg Co... *75
Berlin Construction Co... 76
Berquist, A S... 58
Bessemer Limestone Co... 49
Bethlehem Fdy & Mch Co... *5
Blackmer & Post Pipe Co... 1
Blaisdell Machinery Co... 21
Blaw Steel Centering Co... *51
Bonteeou, Daniel... 32
Booth, Garrett & Blair... 21
Booth, W M... 28
Boston Bridge Works... 77
Boston & Lockport Block Co. 7
Boughton & Lantz... 28
Bound Brook Crush Stone Co 48
Bourbon Copper & Brass Wks 14
Bowman, A L... 28
Braden, Jas S... 28
Bradley Overmeyer Co... *62
Brandis, Sons & Co, F E... 21
Bridge, Dam & Power Co... 28
Briggs, Marvin... 37
Bristol Co, The... 80
Broderick & Bascom Rope Co. 60
Brooks, H H & Co... 76
Brown Engineering Co... 62
Brown Hoisting Mchy Co... 57
Brownlee, Jas L... 28
Bryan, W H... 28
Buckeye Engine Co... †23
Buckeye Traction Ditcher Co. *49
Bucyrus Co... 64
Buda Fdy & Mfg Co... 36
Buff & Buff... 28
Buffalo Forge Co... 3
Buffalo Meter Co... 18
Buffalo Steam Pump... *3
Buffalo Steam Roller Co... 48
Buffalo Steel Co... 69
Builders Iron Foundry... 39
Burt Mfg Co... *3
Bury Compressor Co... 20
Byers, John F, Machine Co... 56

C & C Electric Co... *12
Cairns & M... 28
Caldwell, H W & Son Co... 58
Caldwell, W E Co... 11
Calument Steel Co... *72
Cameron, A S, S P Wks... 5
Cameron Septic Tank Co... 44
Cameron Culvert Co... 14
C A Mfg Co... 63
Carbon, Wm A... 28
Carnegie-Vincent Co... †23
Carrie Machinery & Supply Co 32
Carlin Sons Co, Thos... 32-54
Carroll, Porter Boil & Tank Co 43
Carson Trench Mach Co... 80
Carter Const. Co... 75
Cayuga Lake Cement Co... 1
Century Cement Mach Co... †68
Champion Bridge Co... 78
Chattanooga Car & Fdy Co... 35
Chicago Blue Print Paper Co. 22
Chicago Bridge & Iron Works 10
Chicago Concrete Machy Co... 54
Chicago House Wrecking Co... 32
Chicago Port Cement Co... 66
Chicago Steel Tape Co... 23
Cincinnati Equipment Co... 33
City Wastes Disposal Co... 28
Clarkson School of Tech... 21
Classified Directory... 26
Clayton Air Compressor Wks. 20
Cleveland City Forge & Ir Co. 38
Cleveland Crane & Car Co... 60
Cleveland Eng Agency... 30
Climax Road Machine Co... 48
Clinton Bridge & Iron Co... *76
Clinton Wire Cloth Co... 79
Clow J B & Sons... 7-15
Coakley & Walsh... 28
Cockburn Barrow & Mach Co. 44
Coffin Valve Co... 17
Colby, J A... 28
Coldwell-Wilcox Co... 17
Collins, Chas E... 28
Colorado Port. Cement Co... 66
Columbia University... 21
Columbia Wagon Co... *47
Conard, Wm R... 21
Concrete Engineering... 30
Concrete Interlocking S. Corp. 2
Concrete Steel Eng Co... 70
Condron, T L & F F Sinks... 28
Conkling, C C... 28
Consolidated Eng & Cont Co... 6
Cons'd'd Rosendale Cem't Co. 66
Cont Car & Equip Co... 35
Contractors' Plant Mfg Co... 56
Cont Supply & Equip Co... 1-53
Conveying Weigher Co... 58
Cook Well Co... 17
Coplay Cement Co... 66
Corrug Con Pile Co... 77
Cresson, Geo V Co... 24
Crocker-Wheeler Co... 14
Cummer, F D & Son Co... 66
Custodis A Chim Const Co... 7
Cutler Mfg Co... 38
Cyclone Drill Co... 17
Cyclopean Iron Works... 61

Dake Engine Co... 57
Dallett & Co... 32
Dallett Co, Thos H... 20
Darling Pump & Mfg Co... 18
Davenport Loco Works... 37
Davis, G M... *11
Davis, M E... 34
Dayton Globe Iron Works... 7
Dean Bros Steam Pump Wks. 5
De La Mater, S T... 28
De Laval Steam Turbine Co... 7
Deming Co... 4
Des Moines Bridge & Ir Wks. 10
Detroit Graphite Co... 38
Detroit Leather Specialty Co. 38
Dickey W S Clay Mfg Co... 1
Dietzgen, Eugene Co... 22
Dimmick Pipe Co... 15
Dixon Jos Crucible Co... 77
Dobbie Fdy & Mach Co... 55
Dodge Coal Storage Co... 59
Donaldson Iron Co... 15
Doud, A N... 60
Drum & Co, A L... 28
Drummond, M J & Co... 15
Duenkel, Chas L... 28
Dunham, H F... 28
Dunseath & Son Co... 43
Dupont Co... †16

Eagle Wagon Works... *46
East Jersey Pipe Co... 15
Eastern Bridge & Struct'l Co. 76
Economy Drawing Table Co... 22
Edison Portland Cement Co.. 66
Edson Mfg Co... 9
Edwards & Co, Joseph... 65
Elliott's Machine Co... 65
Elliott Co, B K... 22
Emerson Steam Pump Co... 8
Emaus Pipe Foundry... 15
Empire Portland Cement Co.. 66
Epping-Carpenter Co... 4
Eppinger & Russell Co... 65
Erie Machine Shops... 22
Erie Pump & Engine Co... 5
Eureka Machine Co... 48
Evens & Howard Fire Brick... 1
Excelsior Wooden Pipe Co.. 1-14
Exp Metal & Corrug Bar Co... 25

Faber, A W... *25
Fairbanks Steam Shovel Co... 62
Fairchild, S E Jr... †59
Fanning, J T... 28
Farley, J M... 28
Farley, Phillip P... 28
Farrell Fdy & Mach Co... 24
Farrington, Harvey... 28
Fayette Eng & Const Co... 28
Federal Filtration System... 80
Ferguson Contracting Co... 75
Fibre Conduit Co... 14
Field, Wm P... 28
Fitz-Hugh Luther Co... 33
Flad, Edward... 28
Flint & Walling Mfg Co... 13
Flory, S, Mfg. Co... 58
Foos The, Gas Engine Co... 6
Foote Concrete Mach'y Co... 53
Fort Pitt Bridge Works... 77
Fort Wayne Electric Works. 12
FOR SALE... 32-35
Foster Engineering Co... 7
Foundation Co... *75
Fowler, O E... 28
Fowler & Son, E N... 28
Fox, John & Co... 15
Fredenburg & Lounsbury... 80
French, Samuel H & Co... 80
Fuertes, James H... 28
Fuller Engineering Co... 28
Fuller, Frank L... 28
Fuller, H J... 18

Ganly Belting Co... 59
Gayler, O... 28
General Electric Co... 12
General Fireproofing Co... 24
Gest, G M... 14
Gilbreth, Frank B... –
Gillespie, T A Co... 43
Glens Falls Port Cement Co... 66
Globe Fdy Co... 17
Goff-Horner & Co, Ltd... 72
Goheen Mfg Co... 77
Golden-Anderson Val Spec Co 18
Good Roads Machinery Co... 24
Goubert Mfg Co... 8
Goulds Mfg Co... 5
Grable-Dunn Co... 56
Gray, Samuel M... 28
Green Fuel Economizer Co... 9
Greene Engineering Co... 28
Greer Filter Co... 44
Griesbauer Jr, J A... 43
Guarantee Con Co... 59
Gulfport Creosoting Co... 63
Gulick Anderson... 21
Gurley, W & L E... 22

Hains Concrete Mixer... *54
Hall, B M... 28
Ham, Wm. Hale... 28
Hammond-Boynton P & C Co. 1
Hammond Iron Works... *11
Hapgoods... 30
Harbison Walker Refrac Co... *44
Hartmuth, L & C... *23
Harper Machinery Co... 32
Harris Air Pump Co... †4
Harrison Safety Boiler Wks. 9
Hartranft, Wm G, Cement Co 80
Haskin, C A... 66
Hatton, T. Chalkley... 28
Hawes, L E... 28
Hayes Track Appl Co... 37
Hayward Co, The... 61
Hazen, Allen... 28
Hazlehurst, James N... 28
Hedrick, Ira G... 28
Helderberg Cement Co... *68
Heller & Brightly... 22
Helwig Mfg Co... *20
Hennebique Const Co... *74
Hering, Rudolph... 28
Herman Leibu... 28
Hersey Mfg Co... 18
Hicks Loco. & Car Works... 35
Higgins & Co, C M... *21
Hildreth & Co... 28
Hitner, H A Sons... 33
Hodge Boiler Works... 8
Hoisting Machinery Co... 60
Holeman, L A... 28
Holmes, A L... 14
Holton & Weatherwax Co... 56
Hooker Steam Pump Co... 5
Horning, Geo. J... 43
Hudson, Clarence... 28
Hudson Structural Steel Co... 1
Hunt, C W, Co... 58
Hunt, Robert W. & Co... 21
Hyde Bros & Co... 32
Hydraulic Concrete Mchy Co. †67
Hydrex Felt & Eng Co... 1-3

Indianapolis Switch & Frog Co 35
Industrial Works... 62
Ingersoll-Rand Co... *21
Inkoff Mfg. Co... 22
Inland Steel Co... 69
Internat Acheson Graph Co... 77
Internat Correa School... †35
Internat Creos & Const Co... 63
Interstate Engineering Co... 76
Interstate Equipm't & Eng. Co 33
Iowa Engineering Co... 28
Iowa State College... 21
Iroquois Iron Works... 54
Irwin Mfg. Co, Thos W... 74

Jackson, Geo W, Inc... 72
Janney, Steinmetz & Co... 74
Jeanesville Iron Works Co... *4
Jeffrey Mfg Co... 58
Johns-Manville Co... 5
Johnson E E... 17
Julian Bros... 32
Just, G A... 28

Kafka, F P... 28
Kaiser, A V... 28
Kalamazoo Fdy & Mach Co... 46
Keeler, E Co... 11
Keith, Herbert G... 28
Kellogg Co, M W... *11-15
Kelly, John E... *22
Kelly-Springfield Rd Rol Co... 49
Kennedy, Julian... 28
Kennedy Valve Mfg Co... 17
Kennicott Water Softener Co.. 9
Kent Mill Co... 66
Kenwood Bridge Co... 76
Keuffel & Esser Co... 23
Kewanee Boiler Co... 9
Keystone Blue Paper Co... 22
Keystone Driller & Pump. 4-17-38
Keystone Powder Mfg Co... 16
Kiesler Co, The... †59
Kilgore-Peteler Co... 35
Kingsford Fdy & Mach Wks.. 4
Kinnear Mfg Co... 38
Knowles Steam Pump... 4
Knight & Hopkins... 28
Koehring Mach Co... *51
Kolesch & Co... 24
Koppel, Arthur... 41
Koamos Port Cement Co... 66
Kratzer, W N & Co... †74
Kupferle, J C Fdy Co... 14

Labor Inf of Italians... 32
Ladd, Jas B... 28
Laidlaw, Dunn-Gordon Co... 20
Lake Erie Engr Works... 9
Lambert Hoisting Engine Co. 55
Lamson Consol. Store Service 58
Landreth, Olin H... 28
Lansing Wheelbarrow Co... 48
Lawrence Cement Co... 80
Lawrence Pump & Engine Co. *4
Lawrence, T J... 29
Layman, E P... 28
Ledder & Probst... *21
Leffel, Jas. & Co... 6
Lehigh Car Wheel & Axle Wks 68
Lehigh Portland Cement Co.. 1
Lehigh University... 21
Lehigh Valley Test Lab... 21
Leopold, J & Co... 49
Leschen, A & Sons Rope Co.. 62
Lewis Institute... 21
Lewis & Kitchen... *44
Lidgerwood Mfg Co... 62
Lietz, A Co... 22
Lima Loco & Mach Co... 37
Link Belt Co... 59
Link Chain Belt Co... 58
Lock-Joint Pipe Co... *16
Longenecker, Chas & Co... 48
Loomis-Manning Filter Co... 1
Lucius, Albert... 33
Lucius, The Co... *75
Ludlow, J L... 33
Lufkin Rule Co... 22
Lunkenheimer Co... 14
Luten, D B... 33
Luther, J P, Glove Co... *25
Luzerne Eng Co... 33

Macomb Sewer Pipe Co... 1
Males Co, The... 32
Marion Inc Filter & Heater Co 8
Marion Steam Shovel Co... 65
Marks, Wm D... 33
Marquette Cement Mfg. Co... 80
Marvin Electric Drill Co... 20
Mason, W B... 33
Massillon Iron & Steel Co... 15
Maurer, Henry & Son... 44
Maury, Dabney H... 33
Mayer, Joseph... 33
McAleenan Boiler Co... 9
McAvoy Vitrified Brick Co... 49
McClintic Marshall Const Co. 78
McConway & Torley Co... 36
McGowan, John H, Co... 75
McGrath, M P... 75
McKelvey Concrete Mach Co. 54
McKenna, Dr. Chas... 1
McKiernan Drill Co... 20
McKinney Co, C S... 63
McLean, John... 14
McMullen, Arthur & Co... 75
McMyler Mfg Co... 62
McNeil, James & Bro... 14
McWane Pipe Works... *15
Meacham & Wright... 66
Mead-Morrison Mfg Co... 55
Meade Testing Laboratories. 21
Mechanical Mfg Co... 36
Meehan Boiler & Const Co... 11
Merrill Bros... 38
Mcealf & Eddy... 33
Mietz, A... 6
Michigan College of Mines... 21
Michigan Pipe Co... 15
Millar, Chas & Son Co... 15
Miller, Carroll... 33
Miller, Clifford & Co... *2
Milne, A P... 33
Milne Mfg Co... †43
Milwaukee Bridge Co... 77
Minneapolis Steel & Mach Co. 75
Missouri Valley B. & I. Co... 78
Mittineague Paper Co... *23
Modern Tool Co... *18
Monarch Road Roller Co... 48
Monighan Mach Co... 56
Monmouth Mining & Mfg Co. 1
Monolith Steel Co... 69
Moravs Construction Co... 76
Morris Co, I P... 5
Morris Machine Works... 5
Morse, A J & Son... 63
Mount Vernon Bridge Co... 78
Muller, Oscar & Co... *25
Mundy, J S... 54
Municipal Eng & Con Co 47-50-52
Murray Co... 44

National Belting Co... 1
National Bitumen Co... 26
Nat Boiler & Sheet Iron Wks. 11
National Brake & Clutch Co... –
National Bridge Co... 76
National Equipment Co... 54
National Fireproofing Co... 14
National Hoisting Eng Co... *55
National Meter Co... 19
National Paint Works... 1
Nat. Paving Brick Man. Asso. 48
National Powder Co... *16
National Wood Pipe Co... 14
Neptune Meter Co... 18
New England Structural Co... 76
New Era Gas Engine Co... 6
N J Foundry & Machine Co. †55
New Orleans Wood Pres Wks 63
N Y Cont Jewell Filtration Co 80
N Y Purchasing Agency... 33
N Y Sewage Disposal Co... 33
N Y Univ Sch of App Science 21
Nims Concrete Mach'y Co... 52
Norfolk Creosoting Co... 63
North Am Dredging Co... 64
North American Metaline Co. 31
Norwalk Iron Works Co... 20
Norwich University... 21
Norwood Engineering Co... 14
Nubian Paint Co... 1

Oliver Mfg Co, W J... 46
O'Rourke Eng Const Co... 75
Osgood Dredge Co... 63
Ostrom, John N... 33
Ott, Jr. J. Conrad... 33
Otto Gas Engine Works... *7
Owen, James... 33

Pacific Flush Tank Co... 43
Page & Shnable... 63
Palmer, W K... 33
Parker Hoist & Mch Co... †55
Parker Boiler Co... 8
Parsons, C G W... *47
Patterson Co, W W... 76
Pawling & Harnischfeger... 60
Pelton Water Wheel Co... 6
Penn-Allen Cement Co... 66
Penn Bridge Co... 76
Pennsylvania Cement Co... 80
Penn Military College... 21
Pennsylvania Railroad... 18
Pennsylvania Steel Co... 78
Perring, H G... 29
Petroleum Iron Works Co... 12
Pfister, Herm... 21
Phillips & Worthington... *44
Phœnix Bridge Co... 77
Pierson, Geo S... 29
Pitometer Co... 29
Pittsburg Block & Mfg Co... 54
Pittsburg Filter Mfg Co... 44
Pittsburgh Mfg Co... 17
Pittsburg Meter Co... 18
Pittsburgh Test Lab... 29
Pneumatic Caisson Co... 75
Poole Eng & Machine Co... 54
Porter, H K Co... 37
Porter, J M... 48
Portland Iron & Steel Co... *24
Power & Mining Mchy Co... *68
Power Specialty Co... 4
Pratt, Wm. A... 29
Prescott, F M Steam Pump Co 5
Presiar Prospecting Eng Co. †44
Pressed Steel Car Co... 36
Pressey & Weller... 29
Prince, L M... *21
PROPOSALS 43-50, Supplement
Puget Sound Bdge & Dredg Co 63
Pulsometer Steam Pump Co.. 1-7
Purington Paving Brick Co... 49
Putman, H J & Co... *25

Queen & Co... 23

Rail Joint Co, The... 36
Railroad Supply Co... 36
Railway Steel-Spring Co... 37
Ramapo Iron Works... 29
Randolph, I... 29
Ransome Concrete Mach Co. 51
Ransome, Earnest L... 29
Raymond Con Pile Co... 75
Raymond, W G... 29
Reeves Brothers Co... 10
Reinforced Con Pipe Co... †30
Reliance Mach & Tool Works 56
Rensselaer Mfg. Co... 17
Rensselaer Polytechnic Inst... 21
Reuter, Carl H... *23
Rhodes, F D... 29
Riehle Bros Test & Mach Co. 8-68
Rife Hydraulic Ram Co... *5
Riggs & Sherman Co... 29
Rinald Bros... 1
Ridgway Dyn Turbine Co... 1
Riter-Conley Mfg Co... 11
Riverside Bridge Co... 77
Roberts Mfg Co... 44
Robins Conveying Belt Co... 58
Robinson, A W... 29
Robinson Clay Product Co... 44
Robinson & Orr... 34
Rockwood Mfg Co... 59
Rodger Ballast Car Co... 35
Rodgers Co... 29-74
Roebling Construction Co... 38
Roebling, John A Sons Co... 60
Rogers Shear Co... 69
Rondinella, L F... * –
Root & Vandervoort... 57
Rose Polytechnic Institute... 21
Ross Valve Mfg Co... 17
Roehle, E G & Co... *22
Ruggles-Coles Eng Co... 68

Safety Car Heat & Light Co.. 36
Sandusky Portland Cement Co 67
San Francisco Bridge Co... 75
Saunders, D. Sons... 15
Scaife, Wm B & Sons Co... 76
Scarborough, F W... 29
Scherzer Rol Lift Bridge Co.. 78
Schoellhoff, Hartford & Hanna Co... *38
School of Structural Drafting *30
Schrader's Son, A... 63
Schreiber, L & Sons Co... 78
Scovil Hardware & Supply Co 38
Seelig & Son R... *25
Sessions Foundry Co... 17
Shankland, E C & R... 29
Shannon, J Jacob... 54
Sharon Boiler Works... 7
Shaw, E L... 29
Shawmut Brick Works... 48
Sheffield School of Yale... 21
Shepard Elec. Crane & Hoist Co 58
Shoemaker, Lewis F & Co... 76
Sicilian Asphalt Paving Co... 74
Simplex Valve & Meter Co... 18
Simpson Bros Corporation... –
Sinnamahoning Powder Co. *16
Sirocco Eng Co... 29
SITUATIONS WANTED. 30-31
Smidth, F L & Co... 67
Smith & Sons Co, Theo... 64
Smith, A P Mfg Co... 18
Smith & Davis... 29
Smith, S Morgan Co... 6
Snare & Triest... 77
Snyder, C E Co... 80
Solomon-Norcross Co... 29
Soltmann, E G... 22
Sooysmith, Charles... 29
Soper, Geo A... 29
Souther, Jno & Co... *62
Southern Creosoting Co... 63
Southern Iron & Equip Co... 38
Southwark Fdy & Mach Co... *9
St George, H V... *21
St Louis Portland Cement Co. 80
St Mary's Sewer Pipe Co... 1
Stackpole & Brother... 22
Standard Asphalt & Rub Co.. *42
Standard Bridge Co... 77
Standard Concrete Steel Co... 75
Standard Paint Co... 38
Standard Sand & Machine Co. †57
Star Drilling Machine Co... 17
State University of Iowa... 21
Steel Protected Concrete Co.. *47
Steel Rail Supply Co... 34
Steel Storage & Elev Con Co.. 77
Steward & Romaine Mfg Co... 44
Stone & Webster Eng'g Corp. 75
Stothoff Bros... 17
Stott, Samuel E... 29
Stow Flexible Shaft Co... *21
Straley & Haabrouck... *43
Strauss Bascule & Concrete Bridge Co... 76
Streeter, H C... 76
Streiff, Abraham... 76
Strobel Steel Const Co... 76
Stroudsburg Eng Works... 54
Struthers Wells Co... 11
Stuebner Iron Works... 61
Stupp Bros Bdg & Iron Co... 78
Sturgess Eng Dept... 6
Sturtevant, B F Co... †7
Sullivan Machinery Co... 20
Superior Port. Cement Co... 80
Surveyors Inst Exchange... 23
Surveyors & Draftsman S Co. 23
Svenson-Shuman Mach Co... 54
Swensson, Emil... 29

Taylor Iron & Steel Co... 13
Taylor, L H... 29
Technical Supply Co... *23-25
Terry & Tench, Inc... 60
Thew Automatic Shovel Co... 64
Thiel Contracting Co... 43
Thompson, Wilford A... 29
Thomson Meter Co... 18
Thorn Cement Co... 66
Tippett & Wood... 11
Toch Bros... –
Toledo Foundry & Mach Co... 65
Toledo-Massillon Bridge Co... 76
Tomkins, Calvin... 48
Torbert, A C & Co... 33
Torrance, Wm... 29
Trenton Iron Co... *60
Tribus & Maasa... 29
Troy Public Works Co... 33
Troy Wagon Works Co... 48
Truesdell, W E... 29
Truss Metal Lath Co... 70
Trussed Concrete Steel Co... 25
Tucker & Vinton... 74
Tufts College... 21
Turl's Sons, John... 54
Turner, C A P... 29
Turner Construction Co... †73

Ulmer, J C & Co... *25
Union Iron Works... 61
United Eng & Con Co... 75
United Telephone Dept... 10
Universal Drafting Mach Co... 22
Universal Port Cement Co... 80
University of Illinois... 21
University of Michigan... 21
University of Vermont... 21
U. S. Equipment Co... – –
U S Mineral Wool Co... 1
U S Wind Engine & Pump Co. 12
U S Wood Preserving Co... †25
Utica Pipe Foundry Co... 15

Valle & Young... 74
Van Cleve, A H... 29
Van Noorden Co, E... 74
Variety Iron & Steel Wks Co. 76
Virginia Bridge & Iron Co... 77
Vulcan Iron Wks (Chicago) 62
Vulcan Steam Shovel Co... 64
Vulcan Iron Wks (Wilkesb'e) 37
Vulcanite Port Cement Co... 80

Waddell & Harrington... 29
Wadsworth, Howland & Co. 22-70
Wadsworth Stone & Pav. Co... 49
Wagenhorst & Co, J H... *25
Waldron, Fred'k A... 29
Want Cards and Sits Open. 30-31
Waring, Chapman & Farquhar 29
Warner, Chas Co... *65
Warren City Boiler Works... 10
Warren Fdry & Machine Co... 15
Washington College of Engr. 21
Washington University... 21
Watertown Engine Co... †8
Watkins, Thos... †15
Watson, Benjamin... 32-35
Watson-Stillman Co... 36
Watson Wagon Co... 45
Weber, F, & Co... *22
Weber, The Co... *11
Webster Mfg Co... 58
Weil & Co, J H... 22
Wellman-Seaver-Morg Eng Co 60
Wells Light Mfg Co... 11
Westcott Co, G G... 28
West's Wheeled Scraper Co. 34-44
Westinghouse Air Brake Co... 13
Westinghouse Elec & Mfg Co. 13
Weston, E B... 29
Weston, Robert Spurr... 29
West Pascagoula Creo Wks... 63
Wheeler, C H, Mfg Co... 4
White & Co, J G... 29
Whitehead & Kales Iron Wks 76
Whiting Foundry Equip. Co... 1
Whitney, O R... 32
Wickes Bros... 34
Wiebusch & Hilger, Ltd... †24
Wiederhold Const Co... *11
Wiegner, Ernst... 37
Wight, W N, & Co... 72
Wilcox Co, W H... 53
Wiley, John & Sons... 38
Wilkins Co, Wm G... 29
Williams, Brown & Earle... *21
Williams Bros... *17
Williams Co, G H... 61
Williamson Bros Co... 57
Wilson, Harris & Richards... 29
Wilson, J G, Mfg Co... 38
Winn, Walter E... 29
Wisconsin Bridge & Iron Co.. 76
Wise & Watson... 23
Wissler Instrument Works... 23
Wittstock, F & R... 23
Wolverine Ptd. Cement Co... 66
Wonham-Magor Eng Co... 35
Wood, R D, & Co... 4
Worcester Polytechnic Inst... 21
Worthington, Henry R... 4
Wyckoff Pipe & Creo Co... 63
Wyckoff Wood Pipe Co... 3
Wyoming Shovel Co... 43

Yale & Towne Mfg Co... 54
Young, W W... 29
Young & Sons... 23
Youngstown Car Mfg Co... 35
Youngstown Ir & St Roof Co. 74

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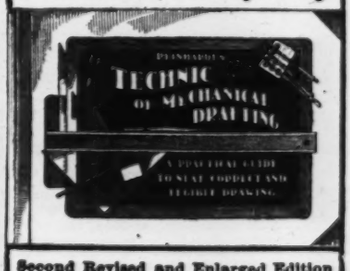

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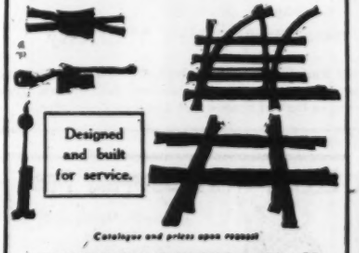

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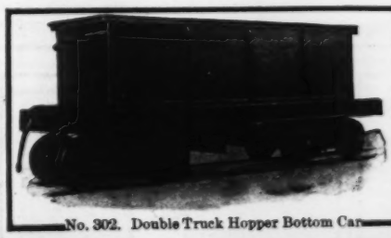
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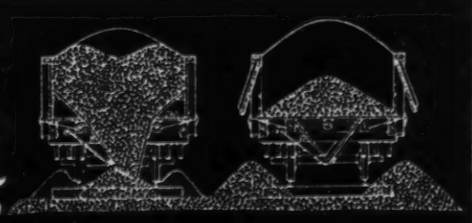
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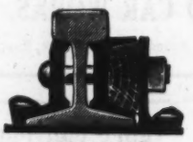

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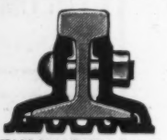

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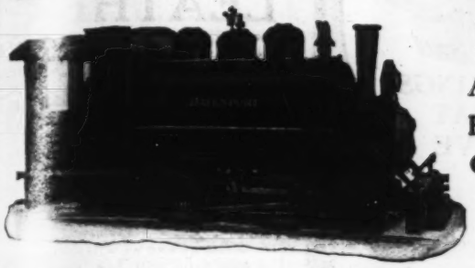

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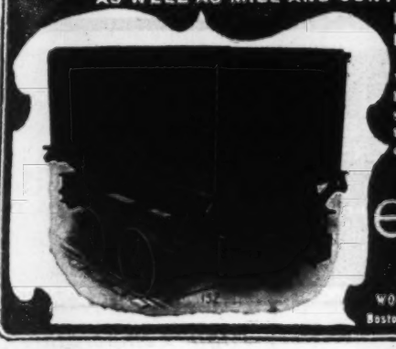

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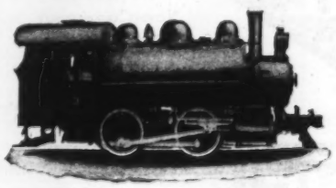

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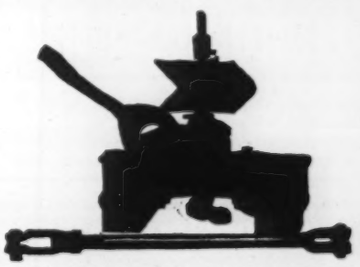

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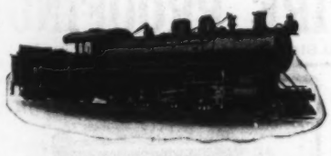

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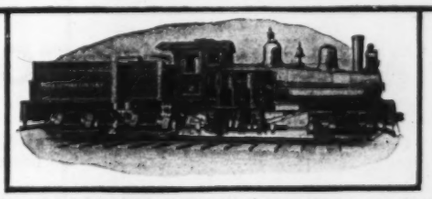

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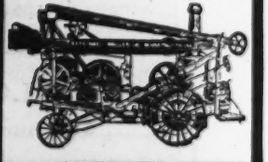

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ALGIERS SEWERAGE STATION "C."

Office of the Sewerage and Water Board, 2-604 Carondelet Street, New Orleans, La., April 14th, 1908.

Sealed proposals will be received until 3 o'clock P. M., Tuesday, June 30th, 1908, for furnishing and erecting the following machinery:

2—100 K.W., 250 volt, direct current generators.

2—75 H.P., 250 volt motors.

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Also all exhaust and water piping, valves, wiring, switchboard, lights, and other appurtenances, completely erected.

Specifications with blank form of proposals may be obtained at the office of the Board. Plans will only be furnished upon personal application.

A certified check on a New Orleans bank, in the sum of $1,000, deposited in accordance with the terms of the specifications, will be required of each bidder.

A surety company bond in an amount equal to 25 per cent. of the gross amount of the contract, with a surety company doing business in the State of Louisiana and acceptable to the Sewerage and Water Board, will be required of the successful bidder.

The right is reserved to reject all bids.

F. S. SHIELDS,
Secretary.

GEO. G. EARL,
General Superintendent. 17-10t

FILLING.

Danville, Pa.

Sealed proposals will be received by the Board of Trustees of the State Hospital for the Insane at Danville, Pa., until Thursday, July 9th, 1908, at twelve o'clock, noon, for filling a portion of the Pennsylvania canal upon the grounds of the State Hospital, Danville, Pa. Plans and specifications can be had by applying to Dr. H. B. Meredith, Supt. State Hospital, Danville, Pa.

Each bid must be accompanied by a certified check of One Thousand Dollars, to the order of Alex. Foster, Treasurer, which sum shall be forfeited in the event of the successful bidder not entering into a contract with satisfactory bond in the sum of twenty-five per cent. of the amount of the contract.

The right to accept or reject any or all bids, or parts of bids, is reserved, as may be deemed to the best interest of the State.

Address all bids to WILLIAM FIELD SHAY, Pres., c/o DR. H. B. MEREDITH, Supt., Danville, Pa.

SEALED PROPOSALS will be received at the office of the United States Reclamation Service, Portland, Oregon, until 2 o'clock P. M., July 15, 1908, for the construction of Sulphur Creek wasteway channel and structures near Sunnyside, Washington. The work includes the dredging of about seven miles of channel, involving about 310,000 cubic yards of excavation, and the placing of about 1,000 cubic yards of concrete masonry and 2,000 cubic yards of riprap.

For particulars, address the United States Reclamation Service, Washington, D. C., Portland, Oregon, or Sunnyside, Washington.

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SALE OF WATER-WORKS EQUIPMENT.

Cincinnati, Ohio.

Sealed bids will be received by the Board of Public Service of the City of Cincinnati, State of Ohio, at the office of said Board, until 12 o'clock noon of Monday, July 13th, A. D. 1908, for the sale of Boilers, Pumping Engines, Deep Well Pumps, Boiler Feed Pumps, Hoisting Engines, Horizontal Engines, Tools, etc., at

Linwood Pumping Station.
Cumminsville " "
Westwood " "
Front Street " "
Mt. Hope " "
Hunt St. " "

List and descriptions can be procured in said office.

Each bid must contain the full name of every person or company interested in the same and be accompanied by a bond in the sum of twenty-five per cent. of the amount of bid, to the satisfaction of the Board, or a certified check on some solvent bank, as a guaranty that if the bid is accepted a contract will be entered into and its performance properly secured. Should any bid be rejected, such check will be forthwith returned to the bidder; and should any bid be accepted, such check will be returned upon the proper execution and securing of the contract.

Bidders are required to use the printed forms. The right is reserved to reject any and all bids.

By order of the Board of Public Service.

JOHN J. WENNER,
Clerk.

June 13th, 1908.

OFFICE OF THE CONSTRUCTING QUARTERMASTER, Cheyenne, Wyoming, May 28, 1908.—Sealed proposals in triplicate, will be received at this office until 11.30 A. M., June 29, 1908, at which time they will be opened in public, for furnishing all material and labor required for construction of two pavilion ward wings and corridors to the Post Hospital now being constructed at Fort D. A. Russell, Wyoming, with other items of omitted work; also for heating, plumbing and fixtures and electric wiring and fixtures for the above additional ward wings with plumbing fixtures for main building. All in accordance with plans and specifications on file in this office, also office Chief Quartermaster Department of the Missouri, Omaha, Nebraska and Chief Quartermaster, Department of Colorado, Denver, Colorado. Blank forms of proposal, instructions for bidders and full information furnished on application. The right is reserved to reject any and all bids or part of bids. Envelopes containing proposals should be endorsed "Proposals for additional ward wings Post Hospital Fort D. A. Russell, Wyo." and addressed CAPTAIN V. K. HARY, 15th Infantry, A. Q. M., U. S. Army, Cheyenne, Wyoming, in charge of Construction. 23-4t

U. S. ENGINEER OFFICE, Room 415, Custom-House, Cincinnati, O., June 2, 1908.—Sealed proposals for constructing Dam, Guidewalls, Dwelling, etc., at Lock No. 1, Tug Fork of Big Sandy River, at Saltpeter, W. Va., will be received here until 2 p. m., standard time, July 2, 1908, and then publicly opened. Information furnished on application. J. G. WARREN, Lieut.-Col., Engrs. 23-4t

MACADAM ROAD.

Camden, N. J.

Bids are invited for macadamizing the 2d Section of the Blackwoodtown Turnpike from Chews to Blackwood, a distance of 2.4 miles, using Asphaltum Oil for binder, and a separate alternate bid for the same work substituting gravel instead of Asphaltum Oil for binder on the inch-and-a-half stone.

Bids will be received, immediately opened and publicly read, at the Stone Road Committee meeting, held in the Freeholders' Room, at the Court House, Camden, N. J., on Monday, July 6, 1908, at 11 A. M.

Copies of the plans and specifications can be seen at the office of Fred. W. George, Clerk of the Board, Court House, Camden, N. J., or at the office of Col. Frederick Gilkyson, State Commissioner of Roads, Trenton, N. J.

Each bidder must furnish a certified check in the sum of $1,000.00 as a guarantee of good faith.

The Board reserves the right to reject any or all bids, and to decide as to the responsibility of the bidders.

Dated, Magnolia, N. J., June 10, 1908.

ALFRED L. SAYERS, Director.
J. J. ALBERTSON, Co. Enkr.

COVERED SLOW SAND FILTERS FOR BERNHART SUPPLY.

Reading, Pa.

Sealed proposals will be received by the Board of Water Commissioners at 25 N. Eleventh Street before 7.30 o'clock P. M., Friday, July 10, 1908, for constructing Bernhart Filters. Plans, specifications and proposal blanks can be had by applying in person at the office of the Superintendent and Engineer, Emil L. Nuebling. Proposals must be accompanied by a certified check or proposal bond in the sum of $15,000. The right is reserved to reject any or all proposals.

EDWARD ELBERT,
President.
Attest:
LINCOLN S. RAMSEY,
Secretary.

DEPARTMENT OF THE INTERIOR, UNITED STATES RECLAMATION SERVICE, Washington, D. C., May 23, 1908.—Sealed proposals will be received at the office of the United States Reclamation Service at Orland, California, until 2 o'clock p. m., August 27, 1908, for the construction of East Park Dam, Spillway and Dikes, located about 12 miles northwest from Sites, Colusa County, California, and involving the placing of about 13,500 cubic yards of concrete and the excavation of about 8,500 cubic yards of materials. For further particulars address the United States Reclamation Service, Washington, D. C., 307 Tilford Building, Portland, Oregon, or Orland, California. JAMES RUDOLPH GARFIELD, Secretary.

U. S. ENGINEER OFFICE, Vicksburg, Miss., May 13, 1908.—Sealed proposals for building Lock and Dam No. 2 in Ouachita River at Harrisonburg, La., will be received here until 12 M., July 13, 1908, and then publicly opened. Information furnished on application. CLARKE S. SMITH, Capt., Engrs. 20-2t 22-1t, 26-1t

BRIDGE.

Dayton, O.

CHANGE OF DATE.

Sealed proposals will be received at the office of the Clerk of the Board of Public Service of the City of Dayton, Ohio, until 12 o'clock noon, Saturday July 18, 1908 for the construction of a concrete-steel bridge (Melan System) across the Great Miami River, at Stratford Ave., in accordance with plans and specifications on file in the office of the City Civil Engineer. Plans may be seen on and after June 22d, at the offices of the City Civil Engineer, Dayton, Ohio, the Concrete-Steel Engineering Company, Park Row Building, New York, the Engineering News Publishing Co., New York and Chicago. Plans and specifications will be furnished on written request accompanied by a certified check for $25.00 payable to the order of the Clerk of the Board of Public Service. Checks for plans will be returned to all persons submitting proposals, upon the return of the plans.

Length of bridge between abutments 685 feet.

Width of roadway 40 feet; width of sidewalks, 9 feet.

All bids must be made upon printed forms to be obtained at the office of the City Civil Engineer and enclosed in a sealed envelope, directed to the Board of Public Service, Dayton, Ohio, and endorsed upon the outside of the envelope "Proposals for Dayton View Bridge at Stratford Avenue, Dayton, Ohio."

A certified check on a National Bank payable to the order of the Clerk of the Board of Public Service for $5,000.00 without any condition whatever endorsed thereon, will be required of each bidder as a guarantee that if the bid is accepted, contract will be entered into, and the performance thereof properly secured.

The Board of Public Service reserves the right to reject any and all bids, or waive defects in bids in the interest of the City.

By order of the Board of Public Service,

J. C. ELY, President.
WM. A. BUDROE,
Clerk of the Board of Public Service.
FRED. J. CELLARIUS,
City Civil Engineer.

SANITARY SEWERS.

Waterloo, Seneca Co., N. Y.

Sealed proposals will be received by the President of the Village of Waterloo, N. Y., until noon, of July 1, 1908, for furnishing the materials and constructing a system of sewers with sewage disposal plant for said village. The work will cover about fourteen miles of vitrified pipe, six to twenty inches, with trenching for same, four to sixteen feet deep, with manholes, flush tanks, river crossing and septic tank. Proposals will be received for the sewers and septic tank, separately and combined.

Plans, specifications and form of contract may be obtained of the Village President or from the engineers, Morrison & Farrington, Syracuse, N. Y.

Proposals must be accompanied by certified check for two thousand dollars that bidder will execute contract; and contractor will furnish bond for twenty thousand dollars for due performance of contract. The right to reject any and all bids is reserved.

JOHN KROPF, Village President.

June 4, 1908.

QUARTERMASTER'S OFFICE, West Point, N. Y., June 3, 1908.—Sealed proposals, in triplicate, subject to the usual conditions, will be received at this office until 12 o'clock noon, July 3, 1908, for erection at West Point, N. Y., of Gymnasium, Chapel, Chaplain's Quarters, Officers' Quarters, and Battalion Guardhouse, all in accordance with plans and specifications on file in this office. The United States reserves the right to accept or reject any or all proposals. Forms for proposals furnished upon application. Address QUARTERMASTER, West Point, N. Y. 23-4t

For other
PROPOSAL ADVERTISEMENTS
See Pages 43, 44, 45, 46, 51, and Construction News, Page 224.

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CONTRACTORS
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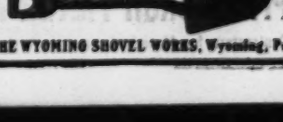
418 Franklin Avenue, Guttenberg, N. J.

A postal will bring gratis DATA on **SHOVELS**

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for the inside of exposed brick walls. Plaster may be applied directly upon it, thus saving expense and the space required for furring and lathing.

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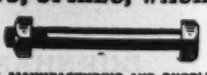

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ELECTRICAL AND PUMPING MACHINERY.

ALGIERS SEWERAGE STATION "C."

Office of the Sewerage and Water Board, 602-604 Carondelet Street, New Orleans, La., April 14th, 1908.

Sealed proposals will be received until 3 o'clock P. M., Tuesday, June 30th, 1908, for furnishing and erecting the following machinery:

2—100 K.W., 250 volt, direct current generators.
2—75 H.P., 250 volt motors.
1—2,500,000 gallon turbine pump, to work against a 125 foot head, directly connected to an electric motor.
1—1,000,000 gallon triplex pump, to work against a 125 foot head, geared to an electric motor.
1—2,000,000 gallon centrifugal pump unit, to work against a 20 foot head.
2—4,000,000 gallon centrifugal pump units, to work against a 20 foot head.
2—5 H.P., 250 volt motors.
1—Surface condenser, capable of condensing 6,500 pounds of steam per hour; together with air pump.

Also all exhaust and water piping, valves, wiring, switchboard, lights, and other appurtenances, completely erected.

Specifications with blank form of proposals may be obtained at the office of the Board. Plans will only be furnished

Automatic Air Lock and Siphonic Apparatus

OF EVERY DESCRIPTION

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For Operating Bacterial Sewage Filters, Septic Tank System of Sewage Disposal

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...Supt., Danville, Pa.

SEALED PROPOSALS will be received at the office of the United States Reclamation Service, Portland, Oregon, until 2 o'clock P. M., July 15, 1908, for the construction of Sulphur Creek wasteway channel and structures near Sunnyside, Washington. The work includes the dredging of about seven miles of channel, involving about 310,000 cubic yards of excavation, and the placing of about 1,600 cubic yards of concrete masonry and 2,000 cubic yards of riprap.

For particulars, address the United States Reclamation Service, Washington, D. C., Portland, Oregon, or Sunnyside, Washington.

JAMES RUDOLPH GARFIELD, Secretary.

20-2t

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Call or write for information.
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DUNSEATH & SON COMPANY
Constructing Engineers and Bridge Builders
Derrick and Traveler Designers and Builders
143 Park Ave., Phone 6197-38 St., New York

...and should any bid be accepted, such check will be returned upon the proper execution and securing of the contract.

Bidders are required to use the printed forms. The right is reserved to reject any and all bids.

By order of the Board of Public Service.

JOHN J. WENNER, Clerk.

June 13th, 1908.

OFFICE OF THE CONSTRUCTING QUARTERMASTER, Cheyenne, Wyoming, May 28, 1908.—Sealed proposals in triplicate, will be received at this office until 11.30 A. M., June 29, 1908, at which time they will be opened in public, for furnishing all material and labor required for construction of two pavilion ward wings and corridors to the Post Hospital now being constructed at Fort D. A. Russell, Wyoming, with other items of omitted work; also for heating, plumbing and fixtures and electric wiring and fixtures for the above additional ward wings with plumbing fixtures for main building. All in accordance with plans and specifications on file in this office, also office Chief Quartermaster Department of the Missouri, Omaha, Nebraska and Chief Quartermaster, Department of Colorado, Denver, Colorado. Blank forms of proposal, instructions for bidders and full information furnished on application. The right is reserved to reject any and all bids or part of bids. Envelopes containing proposals should be endorsed "Proposals for additional ward wings Post Hospital Fort D. A. Russell, Wyo." and addressed CAPTAIN V. K. HART, 15th Infantry, A. Q. M., U. S. Army, Cheyenne, Wyoming, in charge of Construction. 23-4t

U. S. ENGINEER OFFICE, Room 415, Custom-House, Cincinnati, O., June 2, 1908.—Sealed proposals for constructing Dam, Guidewalls, Dwelling, etc., at Lock No. 1, Tug Fork of Big Sandy River, at Saltpeter, W. Va., will be received here until 2 p. m., standard time, July 2, 1908, and then publicly opened. Information furnished on application. J. G. WARREN, Lieut.-Col., Engrs. 22-4t

MACADAM ROAD.

Camden, N. J.

Bids are invited for macadamizing the 2d Section of the Blackwoodtown Turnpike from Chews to Blackwood, a distance of 2.4 miles, using Asphaltum Oil for binder, and a separate alternate bid for the same work substituting gravel instead of Asphaltum Oil for binder on the inch-and-a-half stone.

Bids will be received, immediately opened and publicly read, at the Stone Road Committee meeting, held in the Freeholders' Room, at the Court House, Camden, N. J., on Monday, July 6, 1908, at 11 A. M.

Copies of the plans and specifications can be seen at the office of Fred. W. George, Clerk of the Board, Court House, Camden, N. J., or at the office of Col. Frederick Gilkyson, State Commissioner of Roads, Trenton, N. J.

Each bidder must furnish a certified check in the sum of $1,000.00 as a guarantee of good faith.

The Board reserves the right to reject any or all bids, and to decide as to the responsibility of the bidders.

Dated, Magnolia, N. J., June 10, 1908.

ALFRED L. SAYERS, Director.
J. J. ALBERTSON, Co. Engr.

COVERED SLOW SAND FILTERS FOR BERNHART SUPPLY.

Reading, Pa.

Sealed proposals will be received by the Board of Water Commissioners at 25 N. Eleventh Street before 7.30 o'clock P. M., Friday, July 10, 1908, for constructing Bernhart Filters. Plans, specifications and proposal blanks can be had by applying in person at the office of the Superintendent and Engineer, Emil L. Nuebling. Proposals must be accompanied by a certified check or proposal bond in the sum of $15,000. The right is reserved to reject any or all proposals.

EDWARD ELBERT, President.

Attest: LINCOLN S. RAMSEY, Secretary.

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BRIDGE.

Dayton, O.

CHANGE OF DATE.

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Length of bridge between abutments 685 feet.

Width of roadway 40 feet; width of sidewalks, 9 feet.

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By order of the Board of Public Service,

J. C. ELY, President.
WM. A. BUDROE, Clerk of the Board of Public Service.
FRED. J. CELLARIUS, City Civil Engineer.

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Waterloo, Seneca Co., N. Y.

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Proposals must be accompanied by certified check for two thousand dollars that bidder will execute contract; and contractor will furnish bond for twenty thousand dollars for due performance of contract. The right to reject any and all bids is reserved.

JOHN KROPF, Village President.

June 4, 1908.

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For other
PROPOSAL ADVERTISEMENTS
See Pages 43, 44, 45, 46, 51, and Construction News, Page 224.

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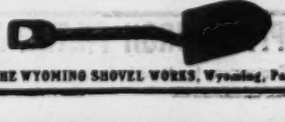
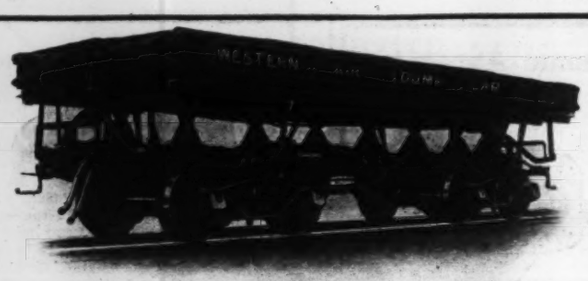

THE WYOMING SHOVEL WORKS, Wyoming, Pa.



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Recollections of quality remain long after matter of price is forgotten.

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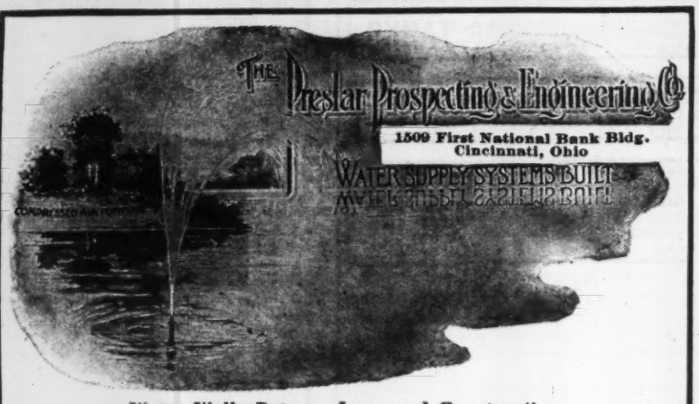

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Applicable alike to the largest centers of population, villages, public institutions and country residences.

No Chemicals No Sludge Nominal Annual Expenditure Automatic Throughout

Sanitary Institute of Great Britain. Highest Award, Leeds, 1897. Gold, Silver and Bronze Medals, Paris, 1900. Gold Medal, St. Louis, 1904.

Plans, Specifications, Automatic Alternating Gear, etc., furnished, or Plants built complete.

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Monadnock Block, Chicago

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Pressure and Gravity Systems for all Purposes

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Paulins, etc.

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Manufacturers of Gravity Filters, Pressure Filters. Water Softening

PITTSBURGH FILTER MANUFACTURING CO., Pittsburgh Pa.

Contractors for Municipal and Industrial Filters, Water Softeners and Sewage Disposal Plants

GRAVEL ROAD.

Cape May County, N. J.

Sealed proposals will be received by the Board of Chosen Freeholders of Cape May County, N. J., until twelve o'clock noon of the day of its meeting on the seventh (7th) day of July, nineteen hundred and eight (1908), at Cape May Court House, N. J., for the construction of a gravel road from the center of the Seashore road at Rio Grande to a point in the Bay Shore road near Schellinger's Corner, at Green Creek, a distance of two and nine hundred seven thousandths (2.907) miles and known as the Rio Grande road.

Said road to be constructed according to plans and specifications which may be seen at the office of Hon. Frederick Gilkyson, State Commissioner of Public Roads, Trenton, N. J.; at the residence of A. B. Smith, Director, Beesleys Point; J. P. Fox, Ocean City; Charles Clouting, Sea Isle City; J. D. Ludlam, South Dennis; Sylvester Spence, Goshen; and Henry S. Rutherford, Cape May City, or at the office of the Engineer at Ocean City, N. J.

On the day and date first mentioned all proposals received for said work will be immediately opened and publicly read by the Board of Chosen Freeholders of Cape May County, N. J., the said Board reserving the right to reject any or all bids.

Each bid must be accompanied by a certified check to the amount of one thousand dollars ($1,000.00) drawn payable to the order of Anthony B. Smith, Director of the Board of Chosen Freeholders of Cape May County, N. J. The successful bidder will be required to execute within ten days after the contract has been awarded to him a bond in such sum and with such security as shall be approved by the Board of Chosen Freeholders; said bond shall be in a sum not less than the estimated cost of the road when completed.

Each bidder will be required to submit to the State Commissioner of Public Roads, Hon. Frederick Gilkyson, Trenton, N. J., and to the Engineer prior to the time of submitting bid for constructing a sample of each class of gravel he proposes to use in the construction of this road.

All proposals must be on the regular "Proposal" form provided for the purpose; sealed and plainly marked on the outside of envelope enclosing them "Proposal for Rio Grande Road."

By order of Board of Freeholders,
ANTHONY B. SMITH,
Director.

R. FENDALL SMITH,
County Engineer.

OFFICE OF THE COMMITTEE ON BUILDINGS, U. S. DEPARTMENT OF AGRICULTURE, Washington, D. C., June 9, 1908.—Sealed proposals will be received at this office until 2 o'clock p. m. on the 1st day of July, 1908, and then opened, for mechanical stokers for the boiler plant, consisting of five Continental Internally Fired Boilers, of the United States Department of Agriculture, Washington, D. C., in accordance with the drawings and specifications, copies of which may be obtained at the Office of the Committee on Buildings, United States Department of Agriculture. B. T. GALLOWAY, Chairman.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., June 13, 1908.—Sealed proposals will be received at this office until 3 o'clock P. M. on the 24th day of July, 1908, and then opened, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring) of the U. S. Post Office at Belleville, Ill., in accordance with drawings and specifications, copies of which may be obtained from the Custodian of site at Belleville, Ill., after the 19th day of June, or at this office after the 19th day of June, 1908, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

SEWER CONSTRUCTION.

Omaha, Nebraska, June [illegible], 1908.

Sealed proposals will be received at the Office of the City Engineer up to two o'clock P. M., Monday, July 6th, 1908, for the construction of brick or concrete storm water sewers and appurtenances as per plans and specifications on file in the Office of the City Engineer.

The work to be done embraces approximately as follows:

IZARD STREET MAIN SEWER.

840 feet sewer, 10 feet in diameter;
860 feet sewer, 11 feet 3 inches diameter;
1,440 feet sewer, 12 feet in diameter;
250 feet, more or less, of 16 by 7½ reinforced concrete construction;
80 feet sewer, 42 inches in diameter;
1,600 feet sewer, 30 inches in diameter;
150 feet open ditch work.

JONES STREET EXTENSION.

2,121 lin. ft. 8-foot sewer;
252 lin. ft. 5-foot sewer;
804 lin. ft. 4-foot, 10-inch sewer;
460 lin. ft. 4-foot, 2-inch sewer.

Payment for said work to be made upon a cash basin; 90% on monthly estimates; an additional 5% when work is accepted and 5% in one year after the completion of the work.

Each bid shall be accompanied with a certified check in the sum of $3,000.00 on the Izard Street Sewer proposal and check also in the sum of $1,000.00 on the Jones Street Extension proposal, as guarantee of good faith that the bidder will promptly enter into contract if award shall be made to him.

The City reserves the right to reject any or all bids.

ANDREW ROSEWATER,
City Engineer.

For other PROPOSAL ADVERTISEMENTS See Pages 43, 44, 45, 46, 51, and Construction News, Page 224.

THE ROBINSON CLAY PRODUCT CO.
OF NEW YORK
EASTERN SALES OFFICE, "FLAT IRON" BLDG.
Largest Independent Manufacturers of Clay Goods in the World
FACTORIES AKRON, O. — YARDS NEW YORK AND SYRACUSE
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EXPANSION & TOGGLE BOLTS For fastening all kinds of material to stone and brickwork. Send for Catalogue.

Steward & Romaine Mfg. Co., 120 N. 6th St. Phila., Pa.

EXTENSION OF FILTRATION WORKS.

Pittsburg, Pa., June 10th, 1908.

TIME.

I. Sealed bids or proposals for the construction of filters, pipe gallery, conduits, piping, fixtures and appurtenances in O'Hara Township, Allegheny County, Pennsylvania, for the City of Pittsburg, and endorsed "Proposal for Extension of Filtration Works, Contract 11, Bureau of Filtration, Department of Public Works," will be received at the office of the City Controller, Municipal Hall, Pittsburg, Pa., until 10.00 A. M., Monday, the twenty-ninth day of June, 1908, and will be publicly opened and read in Common Council Chamber, Municipal Hall on Monday, the twenty-ninth day of June, 1908, at 10.15 A. M.

BLANK FORMS.

II. All bids shall be made upon the blank forms of the proposal, attached to the contract and specifications, to be obtained, on and after Wednesday, the tenth (10th) day of June, 1908, at the City Office of the Bureau of Filtration, in Municipal Hall, Pittsburg, Pennsylvania.

BOND.

III. Each proposal shall be accompanied by a legally executed bond, of a security or trust company, which has complied with the City Ordinances, in reference to furnishing bonds for city contracts, to the amount of two hundred thousand dollars ($200,000.00) which shall be held as security for the execution and faithful performance of the contract.

PLANS.

IV. Blue prints of contract plans and copies of the specifications can be seen at the office of the Department of Public Works, Municipal Hall, Pittsburg, Pennsylvania, and also at the Field Office of the Bureau of Filtration, near the site of the proposed work, in O'Hara Township, Allegheny County, Pennsylvania.

A limited edition of the printed pamphlets of contract and specifications and of the blue prints and plans can be obtained at the City Office of the Bureau of Filtration, in Municipal Hall, Pittsburg, Pennsylvania, by bona-fide intending bidders; but in each case a deposit of ten ($10.00) dollars will be required for each copy of the pamphlet, and of fifty ($50.00) dollars for each set of contract blue prints so obtained. Proper receipt for each such deposit will be given, which said amounts of money will be returned to the bidder when pamphlet and blue prints are returned in good condition to the office, or in case the pamphlet be used in filing a bid.

DESCRIPTION.

V. The property occupied by the City for a Filtration Works lies along the Allegheny River and on both sides of the Conemaugh Division of the Pennsylvania Railroad. The Extension consists of the building of ten (10) covered filters of one acre each with the necessary Conduits, Steel Pipe, Cast Iron Pipe, Gate Valves and Appurtenances.

Included among other items, there are approximately the following quantities:

130,000 cubic yards of excavation and embankment.
33,500 cubic yards of concrete.
145 tons of steel pipe.
130 tons of cast iron pipe and specials.

All quantities given are approximate, and the Mayor and the Director of the Department of Public Works reserve the right to increase or decrease the amount of any class or portion of the work as they deem necessary, and to reject any or all proposals, or accept any proposal, if they deem it to the interest of the City of Pittsburg so to do.

GEORGE W. GUTHRIE,
Mayor.
ALEXANDER B. SHEPHERD,
Acting Director, Dept. of Public Works.
MORRIS KNOWLES,
Chief Engineer.

BOILERS, STEAM ENGINES, GAS ENGINES AND CENTRIFUGAL PUMPS.

New Boston, Ill.

1. Sealed bids will be received by the Commissioners of the Bay Island Drainage and Levee District No. 1, County of Mercer and State of Illinois" at their office in New Boston, Illinois, until 2.00 o'clock P. M., Wednesday, July 29th, A. D. 1908, at which time and place said bids will be publicly opened; said bids shall be for furnishing and erecting a pumping plant and sluiceways, including three 250-HP. water-tube steam boilers, three 500-I.HP. horizontal compound condensing steam engines and three 60-inch centrifugal pumps, together with all foundations, appurtenances, piping, etc., necessary for complete working plant as described in detail in the specifications therefor on file with the Secretary of said Commissioners. Alternate bids will also be received for gas producers and gas engines instead of steam boilers and steam engines.

2. Bids will be received and considered upon any one or more of the parts of said work as described in the plans and specifications hereinafter mentioned, and any bidder may submit alternate bids based upon two or more parts of the work being awarded to him, but the consideration of such alternate bids by the Commissioners will not restrict their right to determine as to the lowest and best bid on each part.

3. The envelopes containing the bids shall each be plainly addressed to the "Commissioners of Bay Island Drainage and Levee District No. 1," and each shall show plainly upon the outside the name of the bidder and the facts that the envelope contains bid, plans or description.

4. Plans and specifications are on file and may be seen at the office of the Commissioners of said District in the City of New Boston, Illinois, at the office of the Harman Engineering Co., Engineers, No. 120 Fredonia Ave., Peoria, Illinois, and at the office of the Secretary of the Western Society of Engineers, Monadnock Bldg., Chicago, Illinois. Copy of the specifications. Form of Contract, Form of Bid and Form of Bond may be procured by application to the Engineers above mentioned.

5. Payments will be made in cash as follows, viz.:

On Parts I., II. and III., 25% of the contract price upon receipt of bill of lading showing shipment from the factory; 25% of the contract price when the same shall be placed upon the foundations ready for installation; 25% of the contract price when ready for operation; the remainder of the contract price upon final acceptance, after the testing of the plant.

On Part IV., in full within 30 days after the arrival of the gates at destination in good order.

On Part V., upon the arrival of the apparatus at destination in good order, 50% of the contract price thereof; upon completion of the same ready for operation, and acceptance after testing said apparatus, the remainder of the contract price.

On Part VI., payments will be made monthly between the 10th and 15th of each month to the extent of 75% of the value of the work completed during the preceeding calendar month, as shown by the estimates of the Engineer; the remainder of the contract price upon the final acceptance of the work.

6. The Commissioners reserve the right to reject any or all bids.

R. H. ROBERTS,
D. S. PRENTISS,
M. F. PROUTY,
Commissioners
New Boston, Illinois.
HARMAN ENGINEERING CO.,
Engineers,
No. 120 Fredonia Ave.,
Peoria, Illinois.

June 11th, 1908.

COURT HOUSE FITTINGS.

White Plains, N. Y.

Sealed proposals for furnishing of labor and material in connection with the items as per the list appended, according to plans and specifications on view at the office of Lord and Hewlett, Architects, 345 Fifth Avenue, New York City, New York, will be received at the Office of the Board of Supervisors, White Plains, N. Y., on or before July 3, at 11 A. M.

Each contractor shall accompany his bid with a certified check for an amount equal to not less than 10 per cent. of his bid. This check shall be made payable to the County Treasurer as a guarantee that if the contract is awarded to him he will enter into contract approved by the County Treasurer and accepted by the Board for the work covered by said bid.

Each bid shall be accompanied with bond of a surety company legally doing business in New York State, for an amount of not less than 25 per cent. of his bid, said bond to be made payable to the Treasurer of Westchester County and to guarantee the faithful performance of the work covered by the contract.

The Board reserves the right to reject any and all bids.

Separate bids to be received on the following items:

Electric equipment of Central Power Plant;
Electric fixtures for new Supreme Court and new Hall of Records buildings;
Vacuum Cleaner;
Rubber Tiling;
Carpets and Rugs;
Special Wood Furniture;
Metal Furniture, Rain Water Sewer, all for the new Supreme Court Building and new Hall of Records Building of the Westchester County Court House, White Plains, N. Y.

All bidders for Electric Fixtures, Metal Furniture and Special Wood Furniture who are not manufacturers, must state in their bid the name of the manufacturer of the material they are to supply, with a statement showing his facilities for carrying out the work and a list of similar contracts.

Dated June 15, 1908.

CHAUNCEY T. SECOR, Chairman;
FFARRINTON M. THOMPSON,
Secretary.
CHARLES D. MILLARD,
JOHN H. McARDLE,
BENJ. I. TAYLOR,
EDWARD P. BARRETT,
JOHN F. CODY,
FRANK S. REYNOLDS,
HENRY C. MERRITT,
Committee on New Court House.
LORD & HEWLETT, Architects,
345 Fifth Ave., New York.

When to Buy Wagons

The time to buy Watson Dumping Wagons is whenever you have need for ANY dumping wagons, because there's no other wagon that will prove up in daily use to be worth so much to you.

The first cost of a Watson Dumping Wagon cannot be figured as a comparison when cheaper wagons are offered; you must figure the excessive cost of upkeep of cheap wagons as against the next-to-nothing outlay for repairs on Watsons.

Then figure the facilities for quick repair on Watson Wagons, if accidents do happen; a duplicate part can be adjusted by the driver; no long wait, no clumsy job, no big blacksmith bills. These are facts to consider before you buy, not after. Get a catalog now.

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256 Broadway, New York City
605 Witherspoon Building, Philadelphia, Pa.
1019 Westinghouse Building, Pittsburg, Pa.
1329-30 Monadnock Building, Chicago, Ill.

GRAVEL ROAD.

Salem, N. J., June 17, 1908.

Sealed proposals for the construction of the Alloway and Aldine Road, extending from the bridge over Hitchner's Mill Race, in the Village of Remsterville to the line of the Township of Upper Pittsgrove, a distance of 4 76/100 miles, will be received by a Committee of the Board of Chosen Freeholders of Salem County, New Jersey, and will be publicly opened at half-past two o'clock p. m., on Monday, July 6th, 1908, at the office of Josiah Miller, in the City of Salem, N. J.

Plans and specifications may be examined at the office of the State Commissioner of Public Roads, State House, Trenton, N. J., at the office of Josiah Miller, Engineer, Head of Market Street, Salem, N. J., and at the office of Engineering News, New York.

Each bidder must enclose with his bid a certified check for one thousand dollars, payable to the order of J. F. Ayres, Director, as a guaranty that if the said work is awarded to him he will enter into a contract with the said Board of Freeholders for the due and faithful performance of the work, which contract, together with the bond of the successful bidder, must be executed within ten days from the time of the formal awarding of the contract by said Board, the said bond to be conditioned for the faithful performance of the work in strict conformity with the plans and specifications, and in the penal sum of at least the total estimated cost of the work. Both contract and bond must meet the approval of the State Commissioner of Public Roads, and the Director of the Board of Chosen Freeholders of Salem County.

The said Board reserves the right to reject any or all bids.

JOHN F. AYRES,
Director.

Attest: C. C. FORD, Jr., Clerk.

REINFORCED-CONCRETE BRIDGE.

Norfolk, Va., June 10, 1908.

Sealed proposals will be received at the office of the Board of Control until 12 o'clock M. on the 30th day of June, 1908, for the construction of one reinforced-concrete bridge about 100 feet long and about 52 feet wide.

Plans and specifications may be inspected at the Office of the City Engineer, Norfolk, Va., or may be had on application by depositing the sum of Five dollars ($5.00), Three dollars ($3.00) of which will be refunded upon return of the plans and specifications. Bidding blanks may be obtained from the same office on request.

Each bid must be accompanied by a certified check on some local bank in the sum of Five hundred dollars ($500.00).

The Board of Control reserves the right to reject or accept any or all bids as may be deemed best for the interests of the City of Norfolk, Va.

W. T. BROOKE,
City Engineer for Board of Control.

U. S. ENGINEER OFFICE, Duluth, Minn., June 10, 1908.—Sealed proposals for dredging in Duluth-Superior harbor will be received here until noon, June 30, 1908, and then publicly opened. Information on application. GRAHAM D. FITCH, Major, Engrs.

U. S. ENGINEER OFFICE, Nashville, Tenn., June 15, 1908.—Sealed proposals for constructing and erecting steel lower gates for Hales Bar Lock, Tennessee River, will be received here until 11 a. m., July 15, 1908, and then publicly opened. Information on application. WM. W. HARTS, Major, Engrs.

For other PROPOSAL ADVERTISEMENTS See Pages 43, 44, 45, 46, 51, and Construction News, Page 224.

WATER-WORKS.

Concord, Mass., June 17, 1908.

Sealed proposals, endorsed "Concord Water Works," for laying cast iron pipe and appurtenances, and building a reservoir in Concord, Mass., for the Water and Sewer Commissioners, will be received at the office of their Engineers, Metcalf & Eddy, 14 Beacon Street, Boston, Mass., up to Wednesday morning, July 8, at 10 a. m.

The approximate amount of work to be done is as follows:

Pipe Laying:

2,000 feet 16-inch pipe.
20,000 feet 12-inch pipe.
70 feet 10-inch pipe.
200 feet 6-inch pipe.
200 feet 4-inch pipe.
Rock excavation
(probably less than 500 cu. yds.
Setting and resetting valves and hydrants.
Connecting extensions with present pipe system.

Reservoir:

9,000 cu. yds. excavation and embankment.
540 cu. yds. Portland cement concrete.
300 cu. yds. screened gravel.
8,000 sq. ft. reinforcing steel.
3,500 sq. yds. seeding.
200 lin. ft. stone wall.
200 cu. yds. rock excavation.
Gatehouse, spillway.

Bids will be compared upon the basis of the Engineer's estimate of work to be done, which is shown in greater detail in the form of contract and specifications.

Proposals for doing the work must be made in the form furnished for the purpose and must be accompanied by a certified check in the sum of five hundred dollars ($500), made payable to the "Water and Sewer Commissioners of Concord, Mass."

A bond in the sum of ten thousand dollars ($10,000), acceptable to the Water and Sewer Commissioners, will be required for the faithful performance of the contract.

Detailed plans of the work may be seen and form of contract and specifications may be obtained at the office of the Engineers, 14 Beacon Street, Boston, Mass., or at the office of Mr. Leonard C. Robinson, Superintendent of Water Works, Concord, Mass.

Bids will be opened in public at the office of the Engineers, 14 Beacon Street, Boston, Mass., Wednesday morning, July 8th, at 10 a. m., and it is hoped that contract may be awarded within five days thereafter.

The right is reserved to the Water and Sewer Commissioners to reject any or all proposals, or to accept the one deemed for the best interests of the town.

WILLIAM WHEELER,
ELMER E. SHATTUCK,
THOMAS HOLLIS,
Water and Sewer Commissioners.
METCALF & EDDY, Engineers.

SEALED PROPOSALS, indorsed "Proposals for quay wall, pier, and coal shed," will be received at the Bureau of Yards and Docks, Navy Department, Washington, until 11 o'clock a. m., August 1, 1908, and then and there publicly opened, for constructing a steel and concrete quay wall and pier on timber piles, and a steel and concrete coal shed at the naval station, Key West, Fla. Plans and specification can be obtained on application to the Bureau or to the Commandant of the naval station named. R. C. HOLLYDAY, Chief of Bureau, June 17, 1908.

PAVING AND SUBWAY.

Auburn, N. Y.

Sealed proposals will be received by Hon. C. August Koenig, Mayor, up to 8 o'clock P. M., July 7th, 1908, for the paving with standard asphalt of William St., and also Garden St., and the construction of subways in said streets. The approximate quantities of work to be done are as follows:

Subways.

William St.—2,050 lin. ft., 6 duct tile; 2,760 lin. ft. straight iron pipe laterals; 4 double and 1 single manholes.

Garden St.—2,400 lin. ft., 6 duct tile; 1,500 lin. ft. straight iron pipe laterals; 7 double and 1 single manholes.

Paving.

William St.—3,800 sq. yds.; 1,900 lin. ft. curbing; 5 catch basins; 1,000 sq. ft. of new sidewalk; 1,000 sq. ft. of old sidewalk to be relaid.

Garden St.—4,500 sq. yds.; 1,830 lin. ft. of curbing; 7 catch basins; 1,000 sq. ft. of new sidewalk; 1,000 sq. ft. of old sidewalk to be relaid.

Bidders may bid upon either or both jobs, but bids must be made separately.

Instructions to bidders, together with specifications, blank proposals, etc., can be obtained upon application to W. Thomas Wooley, City Engineer.

The right is reserved to reject any and all bids.

J. S. HANLON,
City Clerk.

PAVING.

Silver Creek, N. Y.

Proposals for paving Main Street, from the bridge over Walnut Creek to the northerly side of the northerly driveway of the Invincible Works in Silver Creek, N. Y.; Sealed proposals will be received at the office of the Clerk of the Village of Silver Creek, on or before the 29th day of June, 1908, at 12 o'clock noon, for the paving and curbing of Main Street, from the north line of the concrete bridge over Walnut Creek to the northerly line of the northerly driveway of the Invincible Works. This proposal will include the whole street except the portion to be paved by the Buffalo & Erie Traction Company.

The material for paving to be best quality of shale brick equal in quality to Jamestown shale paving brick. The curb is to include a gutter stone to be of concrete, to be in accordance with plans and specifications.

Each proposal must be accompanied by a certified check or New York draft for $500, the check or draft to be returned when the contract is awarded.

The Village reserves the right to accept or reject any or all proposals.

By orders of the Village Board.

C. B. LIVERMORE,
Village Clerk.

Dated June 15, 1908.

OFFICE OF THE COMMISSIONERS, DISTRICT OF COLUMBIA, Washington, June 15, 1908.—Sealed proposals will be received at this office until 12 o'clock noon, Saturday, July 11, 1908, for laying Asphalt-Block Pavements. Blank forms of proposal, specifications, and all necessary information may be obtained at the office of the Engineer Commissioner, D. C. HENRY B. F. MACFARLAND, HENRY L. WEST, JAY J. MORROW, Commissioners, D. C.

IMPROVING THE CHANNELS OF THE RACCOON RIVER AND DES MOINES RIVER.

Sealed proposals will be received by the City Council of the City of Des Moines, Iowa, at the office of the City Clerk in the City Hall until eleven o'clock A. M., on the 15th day of July, 1908, for the following described improvements as per plans and specifications now on file in the office of the Superintendent of the Department of Streets and Public Improvements.

For the improvement of the channels of the Raccoon River and the Des Moines River within the corporate limits of the City of Des Moines.

Work to begin on or before the 20th day of August, 1908, and to be completed on or before the 1st day of April, 1911.

The cost of said work to be paid from a special fund to be created by the issuance of bonds in accordance with provisions of Section 8, Chapter 33, of the Laws of the 30th General Assembly of Iowa, and such bonds to be payable out of the proceeds of a tax to be levied under the provisions of said Chapter 33 of the Laws of the 30th General Assembly of Iowa. Payment will be made in accordance with the provisions of the specifications above referred to.

Each bid must be accompanied with a certified check enclosed in a separate envelope, said check to be drawn on some known responsible bank and made payable to the order of the City Treasurer of the City of Des Moines, in the sum of Thirty-five Thousand ($35,000.00) Dollars. Such check must not contain any conditions either in the body of the check or endorsement thereon. All envelopes must be addressed to the City Clerk, and endorsed with the name of the bidder and the improvement said check and proposal are for. Proposal blanks will be furnished to be used in the making of all bids. Certified checks accompanying proposals will be returned to the unsuccessful bidders and also to the bidder to whom the contract is awarded when he shall have entered into contract, in the form prescribed by the City Council, and given bond in the sum required, which shall not be less than Seventy-five Thousand ($75,000.00) Dollars, with a corporate surety, to execute said work. In case the successful bidder shall fail to enter into contract or furnish bond as required by law, said check shall be forfeited to the City of Des Moines as agreed and liquidated damages. The right is reserved to reject any and all bids. Proposals received will be acted upon by the City Council on the 15th day of July, 1908.

City of Des Moines.
By A. J. MATHIS,
Mayor.

Attest:
GEO. F. POORMAN, City Clerk.

MISSISSIPPI RIVER COMMISSION, Third District, Vicksburg, Miss., June 6, 1908.—Sealed proposals for about 511,000 cubic yards of levee work in this district, will be received here until 12 o'clock, noon, July 8, 1908, and then publicly opened. Information on application. CLARKE S. SMITH, Capt., Engrs.

U. S. ENGINEER OFFICE, Room F-7, Army Building, New York, N. Y., June 9, 1908.—Sealed proposals for dredging and rock removal in Harlem River, N. Y., will be received at this office until 12 M., June 30, 1908, and then publicly opened. Information on application. JOHN G. D. KNIGHT, Col., Engrs.

U. S. ENGINEER'S OFFICE, 725 Chronicle Bldg., San Francisco, Cal., June 8, 1908.—Sealed proposals for constructing diverting canal north and east of Stockton, Cal., will be received here until 12 noon, July 8, 1908, and then publicly opened. Information furnished on application. JOHN BIDDLE, Lieut. Col., Engrs.

STONE ROADS.

Plainfield, N. J.

Proposals are asked for the construction of a Macadam Road on Terrill Road, which is the dividing line between the City of Plainfield and the Borough and Township of Fanwood, Union County, New Jersey, from Green Brook to South Avenue.

The length of the roadway between said points is about 5,495 lineal feet. The width of the stonework is sixteen (16) feet.

The estimated quantities of the items of the work are as follows:

Earth excavation..... 770 cu. yds.
Extra earth excavation for embankment .....4,054 cu. yds.
Eight inch macadam.....9,587 sq. yds.
6 inch underdrains .....

Plans, profiles and specifications for this work may be examined at the office of the County Engineer, 201 Park Avenue, Plainfield, N. J.

Bidders must enclose with their bids a certified check for $1,000.00, made payable to the Director of the Board of Chosen Freeholders of the County of Union, N. J., as a guarantee that if the contract be awarded to such bidder, the bidder will enter into an agreement with the Board of Chosen Freeholders for the performance of the work according to the specifications.

Bids for the above described work will be received and opened by the County Road Committee of the Board of Chosen Freeholders of the County of Union, New Jersey, at the Court House, Elizabeth, N. J., at 2.30 P. M., on Friday, July 3, 1908.

The said Board of Chosen Freeholders or its Committee reserves the right to reject any or all bids, as they may deem best for the interests of the County.

F. J. HUBBARD,
County Engineer.
201 Park Avenue, Plainfield, N. J.

PAVING.

Wellsville, N. Y.

Sealed bids will be received by the Board of Trustees of the Village of Wellsville, N. Y., until 7.30 o'clock P. M., June 30, 1908, for paving with brick or block 6,160 sq. yds. and curbing with stone 3,310 lin. ft.

Specifications and plans may be obtained from R. H. Lee, Engineer in charge, or from the undersigned.

A certified check for $500.00 must accompany each bid.

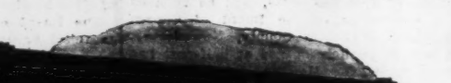
The right is reserved to reject any or all bids.

F. M. LEONARD,
Acting Clerk of the Board.

U. S. ENGINEER OFFICE, Jones Building, Detroit, Mich., June 17, 1908.—Sealed proposals for furnishing and delivering at St. Marys Falls Canal, Michigan, about 1,328,000 feet B. M. of Hemlock timber will be received at this office until 3 P. M., July 17, 1908, and then publicly opened. Information on application. C. McD. TOWNSEND, Lt.-Col., Engrs.

OFFICE OF THE COMMISSIONERS, DISTRICT OF COLUMBIA, Washington, June 15, 1908.—Sealed proposals will be received at this office until 12 o'clock noon, Saturday, July 11, 1908, for paving various streets and avenues with sheet asphalt. Blank forms of proposal, specifications, and all necessary information may be obtained at the office of the Engineer Commissioner, D. C. HENRY B. F. MACFARLAND, HENRY L. WEST, JAY J. MORROW, Commissioners, D. C.

For other
PROPOSAL ADVERTISEMENTS
See Pages 43, 44, 45, 46, 51, and
Construction News, Page 224.

This is the Best

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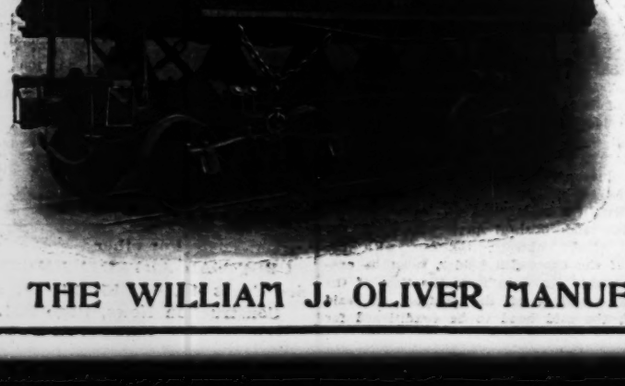
Comparison is All We Ask
It Always Results in Our Getting the Order
The Isthmian Canal Commission
Panama Canal
The Walsh Construction Company
and many others
Investigated—and
GAVE US THEIR ORDER as a result.
We build all sizes of DUMP CARS from 1 to 20 yards
CATALOG FREE
THE WILLIAM J. OLIVER MANUFACTURING COMPANY, Knoxville, Tenn.

WE SELL OR LEASE

WE VARY OUR PAY-FOR-WORK-DONE PLAN OF LEASE in certain cases and with certain sizes of **Chicago Sewer Excavators.** We do this to meet the demand of contractors and public service corporations who have regular but intermittent use for trench excavators for certain standard sizes of work. To meet these and similar conditions we EXECUTE SPECIAL LONG-TIME LEASES OR WILL SELL MACHINES OUTRIGHT.

For the general contractor who has only an occasional piece of trenching to do and whose work varies widely in character from job to job our pay-for-work-done plan of lease gives unusual opportunities for economy, since the contractor can always command the proper size of excavator for his work without carrying several sizes of machines in his plant. The case is entirely different where the size and character of the trench runs fairly uniform. Then one or two sizes of machine will be used year in and year out and out-and-out ownership or a long-time lease gives certain advantages. Our plans of **outright sale, long-time lease, and pay-for-work-done lease** cover all conditions of trench work. Incidentally it may be noted that our line of **Chicago Sewer Excavators** has been rounded out by the addition of a machine for small lateral trenches, tile drainage, etc. This machine has been thoroughly tried out and we can present some valuable records of its work.

WRITE FOR CATALOGUE NO. 102

MUNICIPAL ENGINEERING & CONTRACTING CO.

New York Office, 90 West St. **Main Office, Railway Exchange, Chicago, Ill.**

When you buy a Trench Excavating Machine of the G. W. Parsons Company, they will not only tell you what the machine will do, but will prove to you what it will do before asking you to pay for the same.

The machines are sold outright under guarantee as to what they are and what they will do.

They are not experiments, they are tried and up to date, and are being used by some of the most successful contractors for sewers and water mains in this country and Canada.

The one machine cuts a ditch or trench of any width between 28 and 60 inches and any depth to 20 feet, and at a single cut, depositing the earth on one or both sides of the trench.

The Parsons Traction Trench Excavator is easier handled, weighs less, is cheaper; and in fact there are so many advantages gained by using the Parsons Machine that cannot be mentioned in an advertisement, that we ask you to write us. We will gladly furnish you such information as desired.

Manufactured by The G. W. Parsons Co., Newton, Ia. **GEO. F. LAMBERT, Sales Manager, 306 Observatory Bldg., Des Moines, Ia.**

THE AMERICAN MOTOR ROAD ROLLER

The first motor road roller ever made in America.

An American roller made in an American factory by American Workingmen.

Made in four sizes: 7 tons, 10 tons, 12 tons, 15 tons.

It can do anything and everything which the very best type of steam roller can do.

It can do it more easily, more efficiently, more economically and less objectionably.

Operated by gasoline or denaturized alcohol.

These rollers are in the service of Counties, Cities, Townships, Villages and Road Contractors from the **Atlantic** to the **Pacific**, from **Canada** to **Mexico.**

They have reduced cost of operation on an average 30 per cent. and show **maximum efficiency** in work done.

Send for fully illustrated Catalogue to

The Austin-Western Company, Ltd.
Chicago

National Paving Brick Manufacturers' Association

Naturally the primary purposes of the National Paving Brick Manufacturers' Association is to encourage, in every legitimate way, the increased use of brick in the paving of every class of streets, whether the wholesale streets of the large city where the traffic is heaviest or the quiet residence streets of the country village.

The experience of a quarter of a century has convinced the members of the Association that honesty and painstaking care, in every detail in the construction of brick streets, do more than all other influences combined toward inducing property owners and city officials to build more brick streets. In view of this fact, this Association is glad to offer its strong support and hearty co-operation to any contractor who can show satisfactory proof of his ability and purpose to do nothing but first-class work, and who can also show that he is prompt in meeting his financial obligations. Therefore we cordially invite every American Paving Contractor, who STANDS ONLY FOR GOOD WORK AND PROMPT PAY, to file with the office of the Corresponding Secretary full information as to his ability and disposition to come up to the high standard insisted upon by our Association.

Upon application, we mail, free of charge, to any address in the United States or Canada, full specifications which, carefully followed, will result in a street that will convince any fair observer that a brick street has the advantage, considered from every point of view, over any other form of improved pavement.

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WILL P. BLAIR, Corresponding Secretary,
522-523 Board of Trade Bldg.,
Indianapolis, Ind.

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The rapidly increasing use of traction engines for heavy hauling and grading work is sufficient proof of the many advantages and great economy of steam power over horse power.

THE AVERY
Double Undermounted Engine

was specially designed for heavy traction work of all kinds. Possesses many points of superiority over the boiler mounted style. Some of its advantages are: **Greater power, because direct line pull; increased durability, because no boiler strains; more convenient** to handle in every way.

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AVERY COMPANY
986 Iowa St., Peoria, Ill.

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Telephone, 2488 Rector. Send for Catalogue
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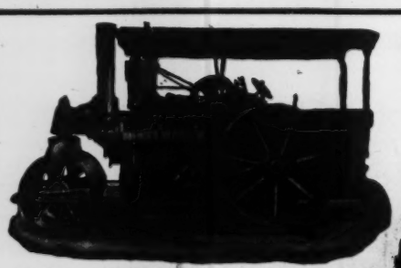
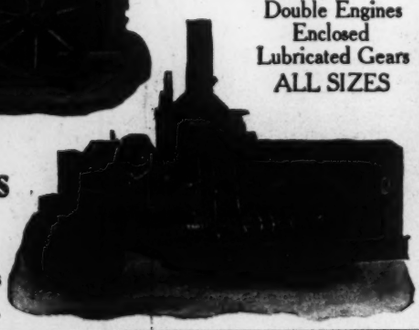
SHAWMUT VITRIFIED PAVING BRICK WORKS, SHAWMUT PA.
Vitrified Shale and Fire Clay Paving BRICKS and BLOCKS Burned in Yates' Patent Kiln.
Samples and Prices on Application. ALFRED YATES, General Manager.



Compact, Simple Construction
Durability and Economical Operation
Large Fuel and Water Capacity
Double Engines Enclosed
Lubricated Gears
ALL SIZES



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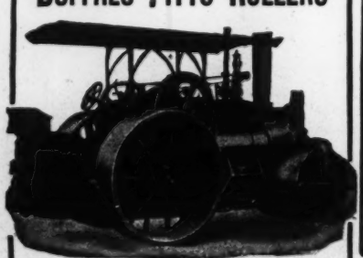
Iroquois Iron Works
Road Rollers
Portable Concrete Mixers
Asphalt Machinery and Tools
BUFFALO, N. Y., U. S. A.

BUFFALO PITTS ROLLERS



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BUFFALO, N. Y.
Eastern Offices: 150 Nassau St., New York; 15 Court Square, Boston

STEAM ROAD ROLLERS
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Groton, Tompkins County, N. Y.

TROY DUMP WAGON
Send for Catalog No. 2N
THE TROY WAGON WORKS CO.
RACE AND WALNUT STREETS
TROY, OHIO

CRUSHED TRAP ROCK Quarry on Central R.R. of N. J.
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NEW YORK STEAM ROLLERS
20,000 TO 30,000 LBS.
HAVE Double Engines, Two Speeds, Differential Gear
Steam Dome
Power Economy Durability

THE "NEW YORK" SCARIFIERS
have double pointed picks

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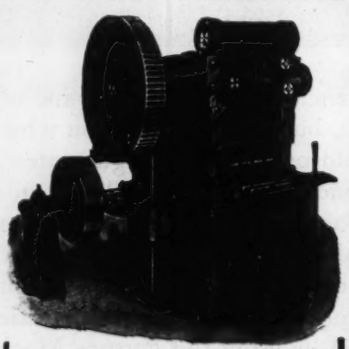

We build complete equipments for making Sand Lime Brick. Also Clay Products. Write for catalogue.

THE AMERICAN CLAY MCH. CO.
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P. W. DIETLY Proprietor
Send for our Catalogue of Asphalt Rollers and Mixers

"Our 20th Century Roller"
31 West 13th Street, Erie, Pa.

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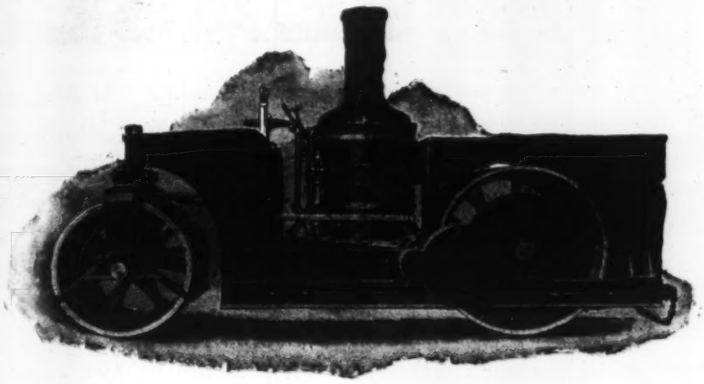

The
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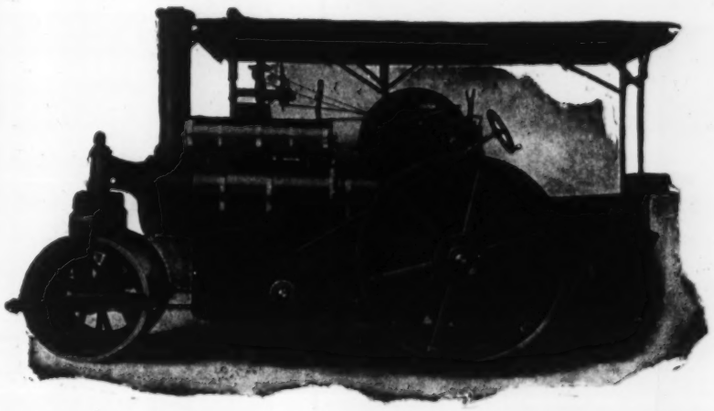
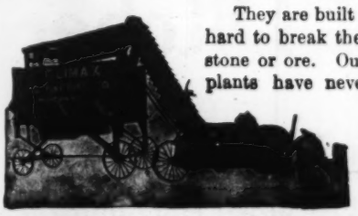
STEAM
ROAD ROLLERS

All Types
All Sizes
For all Purposes



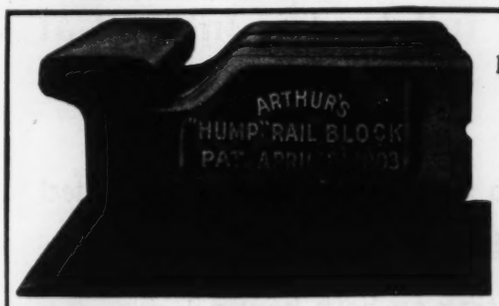
Climax Crushers Never Get "Tired"



They are built to do strenuous work, and it is as hard to break them as it is easy for them to break stone or ore. Our complete portable or stationary plants have never been equaled in efficiency or economy.

Climax Road Machine Co.
MARATHON, N. Y.

HIGH GRADES OF
NATURAL ASPHALT
THE *A. L. Barber* ASPHALT CO.
90 West Street New York
Cable Address, ALBARCO Telephone, 3865 Rector



VITRIFIED
BRICK BLOCKS
FOR T-RAILS

These vitrified brick blocks are designed especially to lay adjacent to the T-rail, making a marked improvement over the old way of pavement.

Full information furnished on application.

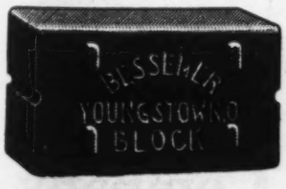
W. H. ARTHUR
Stamford, Conn.

USING KENTUCKY ROCK ASPHALT IN PLACE OF SCREENINGS FOR MACADAMIZED ROADS

"THE WADSWORTH"
MACADAM
The Coming Roadway
Write for Descriptive Booklet

PRODUCING A DUSTLESS, MUDLESS NOISELESS AND WATER-PROOF ROADWAY. NO HEATING REQUIRED

The Wadsworth Stone & Paving Co., 405 Bessemer Bldg., Pittsburg, Pa.



J. G. Butler, Jr., Pres. C. C. Blair, Sec.
Chas. M. Crook, Gen. Man. and Treas.

Bessemer Limestone Co.
YOUNGSTOWN, OHIO
Manufacturers of
Repressed Shale Paving Block

THE PURINGTON PAVING BRICK CO.
GALESBURG, ILL.
MANUFACTURERS OF
Repressed Paving Brick and Blocks
ANNUAL CAPACITY, 75,000,000

Have You the Most Competent Help?
If not, try our "Want" pages, for immediate results. Three cents a word.

McAvoy Vitrified Brick Co. Standard Vitrified Brick and Block
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J. LEOPOLD & CO.
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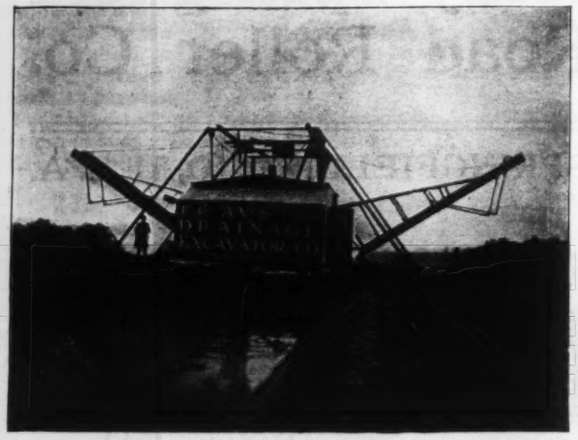
Cable Address Granite, N. Y. Code Used Western Union
GRANITE
PAVING BLOCKS A SPECIALTY
QUARRIES: WELLESLEY ISLAND, ST. LAWRENCE RIVER, N.Y.
VINALHAVEN, MAINE.
We are prepared to make deliveries to all cities situated on Great Lakes. We are making a SMOOTH HEAD GRANITE PAVING BLOCK for the Western market that will lay a close joint.
WE CATER TO EXPORT TRADE.

WE SELL OR LEASE

The normal ditch section is trapezoidal like the one shown by the accompanying picture; normally, therefore, the **AUSTIN DRAINAGE EXCAVATOR** is fitted with a trapezoidal guide frame like that shown by the same picture, but the lower portion, the templet portion, of the guide frame can be changed with very little work to a curved cross-section or to a section of any polygonal shape likely to be used for ditches—and changing the templet changes the ditch. Thus the U-shaped section of the Antelope Valley Aqueduct for the Los Angeles water supply is being dug with an Austin Drainage Excavator fitted with a U-shaped templet. This feature of the Austin Drainage Excavator is particularly useful in irrigation work. The ditch, whatever its section, does not have to be rough-dug first and then lined to templet—**it is dug to templet in the first operation.** Lining the ditch with concrete, stone paving, oil, etc., follows as close behind digging as desired and requires no further trimming or shaping up of the channel, no cleaning of berms. The **Austin Drainage Excavator** is the only ditching machine that has this property and the only ditching machine that will work equally well in a swamp or on an arid plain.



N. B.—Many railroad contractors are finding drainage and irrigation work with Austin Drainage Excavators a profitable occupation for slack seasons in railway construction.

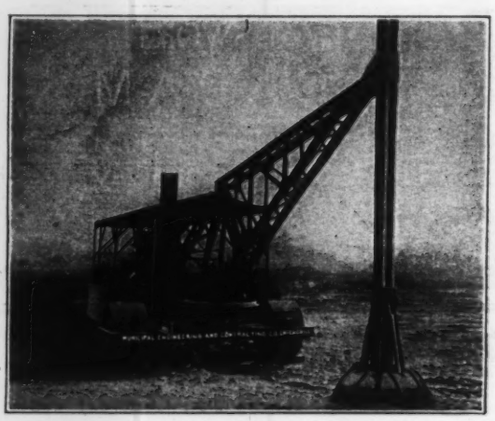
Write for Catalogue No. C

F. C. AUSTIN DRAINAGE EXCAVATOR CO.

Railway Exchange, Chicago, Ill.

Stiff-Legged Orange Peel Ditcher

Especially adapted for **wide and deep cuts** in earth excavation. The bucket, operating in connection with a stiff-legged derrick, is locked when engaging the earth, **so that a full load is insured at each trip.**



It will make a cut 25 feet wide and 20 feet or more deep, loading into cars or wagons; or, 15 feet deep, depositing on both banks.

Write for full description and catalogue 200.

Municipal Engineering & Contracting Company

Railway Exchange Building, Chicago, Ill.

SEWERS.

Portsmouth, Va., June 20, 1908.

Sealed proposals will be received at the office of the City Clerk, Portsmouth, Va., addressed to "Sewerage Committee," until 8 P. M., July 28, 1908, for furnishing all materials and labor in constructing a Sanitary Sewerage System for the Fifth Ward, this City.

The work consists of about nine miles of pipe sewers from 24" to 8" diameter, besides 4" house laterals, cast iron discharge and air pipe, with manholes and flushtanks.

Plans and profiles can be examined and specifications, instructions and forms of proposal can be secured at the office of the City Engineer.

Bids must be made in strict accordance with the Instructions to Bidders, attached to the specifications.

The right to reject any or all bids is specially reserved.

A. AUG. BILISOLY,
WM. JONES WILLIAMS,
Chairmen Sewerage Committee.
BASCOM SYKES,
City Engineer.

CREEK IMPROVEMENT.

Syracuse, N. Y.

Sealed proposals for the improvement of Onondaga Creek, Syracuse, N. Y., will be received at the offices of the Syracuse Intercepting Sewer Board, No. 112 Court House, Syracuse, N. Y., until four o'clock P. M., July 23, 1908.

The work covers approximately 2⅛ miles in length. Its principal items are 76,000 cubic yards Excavation and 14,800 cubic yards Concrete Blocks and Mass Concrete.

Proposals must be made upon blanks which will be furnished upon application. They must be accompanied by New York draft or certified check upon a Syracuse Bank for $10,000.00 that the successful bidder will execute contract within five days after award to him.

Drawings, specifications and form of contract are on file at the office of the Board, where they may be examined. Copies thereof will be furnished with any further information.

HARRY J. HAMLIN,
Secretary.

WATER MAINS.

Alden, N. Y.

Bids will be received until 12 o'clock noon, July 1st, for all Material and Labor necessary, according to the plans and specifications, for Excavating the Water Mains in the Village of Alden, N. Y. Plans and specifications can be seen at Kirks Hotel, Alden, N. Y.

All bids must be addressed to S. M. STOWELL, Secy. of the Water Board.

U. S. ENGINEER OFFICE, Newport, R. I., June 22, 1908.—Sealed proposals for dredging and removing rock from Pawtucket River, R. I., will be received here until 2 p. m., July 22, 1908, and then publicly opened. Information on application. HARRY TAYLOR, Maj., Engrs.

SEALED PROPOSALS, indorsed "Proposals for Torpedo-boat Slips," will be received at the Bureau of Yards and Docks, Navy Department, Washington, until 11 o'clock a. m., July 25, 1908, and then and there publicly opened, for constructing timber piers for torpedo boats at the Navy Yard, Charleston, S. C. Plans and specification can be obtained on application to the Bureau or to the Commandant of the navy yard named. R. C. HOLLYDAY, Chief of Bureau. June 19, 1908.

U. S. ENGINEER OFFICE, Jones Building, Detroit, Mich., June 18, 1908.—Sealed proposals for dredging Hay Lake and Neebish Channels, Saint Marys River, Michigan, will be received at this office until 3 P. M., July 21, 1908. Information on application. C. McD. TOWNSEND, Lt.-Col., Engrs.

FORT DUPONT, DELAWARE CITY, DEL., June 17, 1908.—Sealed proposals, in triplicate, will be received here until 11.00 a. m., July 17, 1908, for construction of oyster shell road and drain for Finn's Point National Cemetery, at Fort Mott, N. J. Information furnished upon application. A deposit of Five Dollars required on all plans and specifications loaned. U. S. reserves right to accept or reject any or all bids or any part thereof. Envelopes containing bids should be indorsed "Proposals for Road and Drain," and addressed to CAPTAIN J. L. KNOWLTON, Constructing Quartermaster, Fort DuPont, Del.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., June 19, 1908.—Sealed proposals will be received at this office until 3 o'clock P. M. on the 30th day of July, 1908, and then opened, for the construction complete (except elevator) of the United States Court House at Portland, Maine, in accordance with the drawings and specifications, copies of which may be had at this office after June 27th, or at the office of the Custodian of the site at Portland, Maine, after June 30th at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

STREET PAVING.

Newburgh, N. Y.

Sealed proposals will be received at office of City Clerk in City Hall, Newburgh, New York, until five o'clock p. m., of Wednesday, July 1, 1908, for furnishing all materials, paving and permanently improving that portion of Liberty street lying between South and North Streets in said city, with vitrified block, asphalt block, or Warren's Bitulithic pavement.

There is about 14,625 square yards to be paved, curbstones to be set, catch basins, etc., to be built.

Cash or a certified check for five hundred dollars must accompany each bid. Bidding sheets may be obtained and plans and specifications can be seen at the office of City Engineer, City Hall, Newburgh, N. Y.

The City Council hereby reserves the right to reject any or all proposals and to accept any considered favorable to the city.

D. J. COUTANT,
City Clerk.
WM. J. BLAKE, Jr., City Engineer.
Dated Newburgh, N. Y., June 19, 1908.

STREET IMPROVEMENT.

Aurora, Illinois.

Sealed proposals will be received by the Board of Local Improvements until 2 o'clock P. M., July 7th, 1908, for Brick Paving and Combined Curb and Gutter.

Estimated quantities: 18,400 ft. Combined Curb and Gutter; 42,700 yds. Brick Pavement.

MYRON J. TARBLE,
City Engineer.

U. S. ENGINEER OFFICE, Mobile, Ala., June 18, 1908.—Sealed proposals for dredging at the mouth of Pascagoula River, Miss., will be received at this office until 11 o'clock A. M., July 20, 1908, and then publicly opened. Information on application. H. JERVEY, Major, Engineers.

OFFICE OF THE COMMISSIONERS, DISTRICT OF COLUMBIA, Washington, June 15, 1908.—Sealed proposals will be received at this office until 12 o'clock noon, Saturday, July 11, 1908, for paving various streets and avenues with Bitulithic Pavement. Blank forms of proposal, specifications, and all necessary information may be obtained at the office of the Engineer Commissioner, D. C. HENRY B. F. MACFARLAND, HENRY L. WEST, JAY J. MORROW, Commissioners, D. C.

SEALED PROPOSALS will be received at the office of the Light-House Engineer, Wilmington, Del., until 11 o'clock A. M., July 10, 1908, and then opened, for furnishing the metalwork for the superstructure of the light-house at Elbow of Cross Ledge Light-Station, Delaware Bay, N. J., in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to the Light-House Engineer, Wilmington, Delawae.

U. S. ENGINEER OFFICE, Wheeling, W. Va., June 24, 1908.—Sealed proposals for constructing and erecting steel gates for locks at Dams Nos. 18 and 13, Ohio River, will be received at this office until 11 a. m. (Eastern time), July 9, 1908, and then publicly opened. Information on application. F. W. ALTSTAETTER, Capt., Engrs.

U. S. ENGINEER OFFICE, Room F-7, Army Building, New York, N. Y., June 18, 1908.—Sealed proposals for removing Long Rock in Harbor at Echo Bay, N. Y., and ledge rock in Bronx River, N. Y., will be received at this office until 12 M., July 17, 1908, and then publicly opened. Information on application. JOHN G. D. KNIGHT, Col., Engrs.

For other

PROPOSAL ADVERTISEMENTS

See Pages 43, 44, 45, 46, 51, and Construction News, Page 224.

SURVEYING MANUAL

A Manual of Field and Office Methods

PENCE & KETCHUM.

CONTENTS.

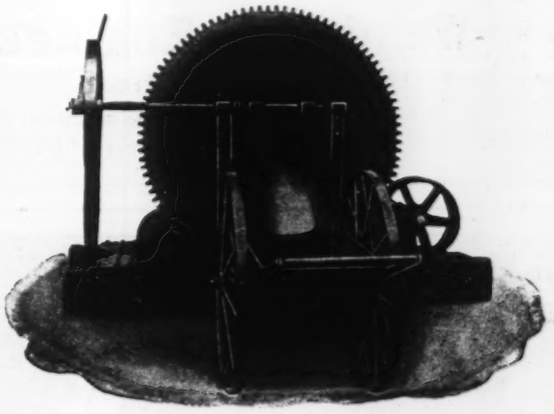
General Instructions, The Chain and Tape, The Compass, The Level, The Transit, Topographic Surveying, Land Surveying, Railroad Surveying, Errors of Surveying, Methods of Computing, Free-hand Lettering.

Cloth; 4½ × 6½ ins.; 250 pp. Illustrated; $2.00.

ENGINEERING NEWS PUB. CO.
220 Broadway, New York.

No. 3 Ransome on Concrete Costs

In the last two issues we gave costs on concrete floor construction by the use of Ransome rollers, and the cost of finishing. In this issue we take up the cost of transporting concrete, for it is an important item, and one that usually costs two or three times what it would cost if properly handled. There is probably no device or tool so economic for transporting moderate amounts of concrete moderate distances as the Ransome two-wheel concrete buggy or push cart. It holds 6 cubic feet of concrete, and one man can readily push it. Men travel about 200 feet per minute, going leisurely, and it takes less than 5 seconds to load a cart from a Ransome mixer. A load of 1-5 cubic yard solid concrete in a cart carried 100 feet and dumped, takes only 1 minute, including the return time. With wages at 15 cents per hour, the cost is, therefore, 1¼ cents per cubic yard per 100 feet of haul from the mixer to the place of deposit of the concrete. No steel tracks are required, but it is advisable to lay two lines of planks for the wheels of the cart to run on. Then with this simple outfit, concrete can be transported as cheaply as in small dump cars, and with far less cost for plant and installation.



No wonder, therefore, that a large contractor writes us saying: "Regarding the concrete carts purchased of you last June, they are undoubtedly the greatest labor saving device for conveying concrete by hand that I ever heard of. We found that a little time spent in laying solid runs for the carts to travel on was all that was required to enable a workman to handle a full cart load of 6 cubic feet. This would be about four ordinary wheelbarrows full."

In the Ransome "Handbook of Concrete Machinery," page 79, we give the complete detailed cost of making and laying a concrete pavement base, at Rochester, N. Y., using a Ransome mixer and Ransome carts.

On reinforced concrete buildings these Ransome carts have displaced all other methods of transporting concrete, wherever the contractors have tried them.

Having given the cost of transporting concrete in Ransome carts, we shall give the cost of hoisting concrete, reserving this for a subsequent issue. The Ransome "Handbook of Concrete Machinery" (1908 edition, just published, 200 pages) is full of valuable data, and will be sent free to anyone who mentions this paper in sending.

Ransome Concrete Machinery Co.

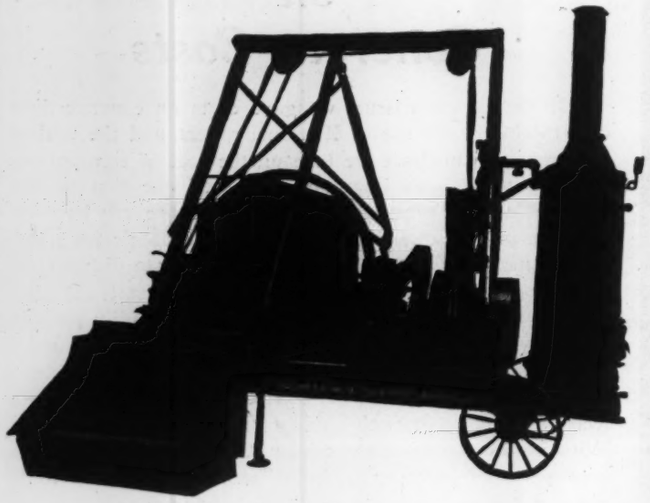
11 Broadway, New York City

BRANCH OFFICES

1336 Monadnock Building, Chicago
Metropolis Bank Building, San Francisco, Cal.
Commonwealth Building, Philadelphia
289 St. James Street, Montreal
Candler Building, Atlanta, Ga.
6 Beacon Street, Boston, Mass.
402 Machesney Building, Pittsburg
11 and 1133 Broadway, New York
1125 Chemical Building, St. Louis

"The Mortar Peeled off the Pebbles"

A leading engineering journal told recently of a concrete foundation failure in which the "mortar peeled off the pebbles," when the "rotten" concrete was being taken out. The engineers concluded that the cement was poor. Doubtless they were right, but poor cement is not always the cause of such peeling. It is quite as likely to be the result of poor mixing. There is in concrete work to-day more poor mixing than poor cement.



When cement, sand and pebbles are mixed to make concrete, two objects are sought. One is to intermingle the several ingredients into a homogeneous mass, the other to bond them together, and of the two, failure to secure the latter is the more disastrous. It is a great mistake to assume that cement mortar bonds naturally with pebbles or broken stone. It does not. Take a pebble and thoroughly wet it, then while still wet dust it thickly with cement. The next day you can remove the shell of cement as cleanly as you remove a thimble from your finger. To bond mortar closely with pebbles or broken stone it must be ground and rubbed into intimate contact with them. You can prove this by taking the same wetted pebble and rubbing it hard in a dish of cement. In 24 hours you will need a chisel to remove the coating of cement. Stirring and spooning the batch do not bond the mortar and pebbles; they must be rubbed together under pressure—the mass must be kneaded. **Mixing** by **kneading**—by folding and refolding the batch under pressure—**can be done only in a cube mixer—this is the cube principle of mixing, and the CHICAGO IMPROVED CUBE MIXER gives the cube principle in all its perfection, plus high output and low cost as a working mechanism.**

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Smith Mixer on same work as shown in first illustration above. Spreading wagon receiving load from mixer.

Smith Mixer shown in distance with spreading wagon working in foreground.

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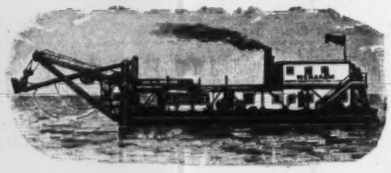

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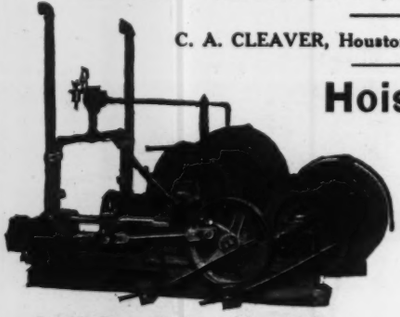

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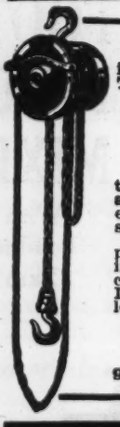

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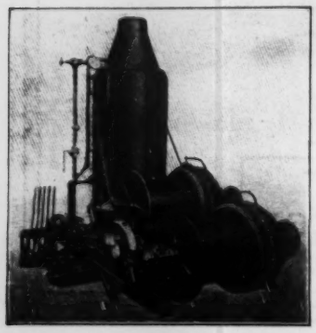

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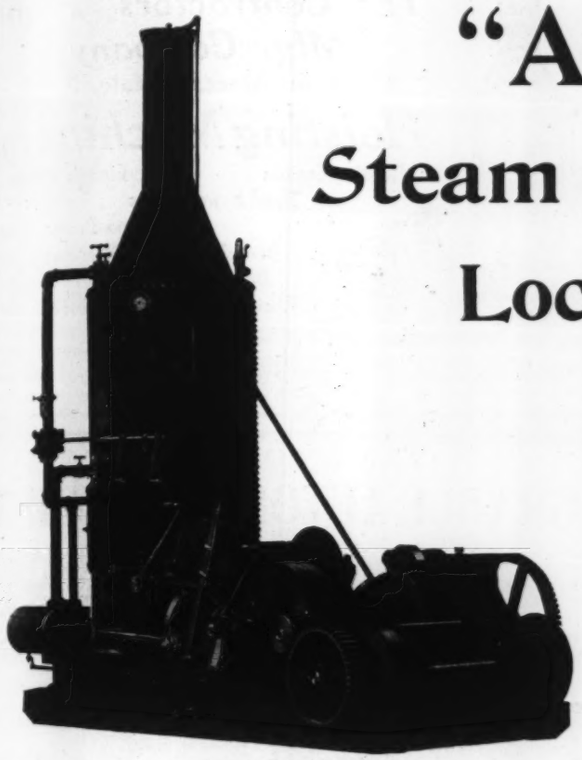

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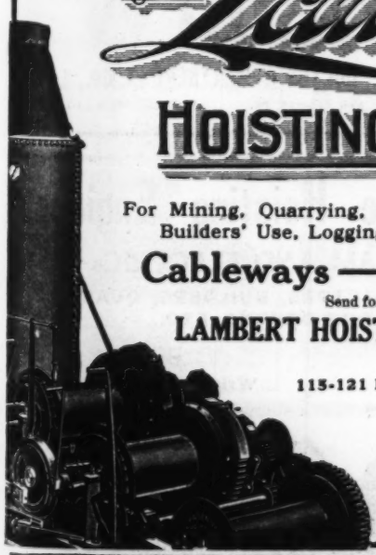

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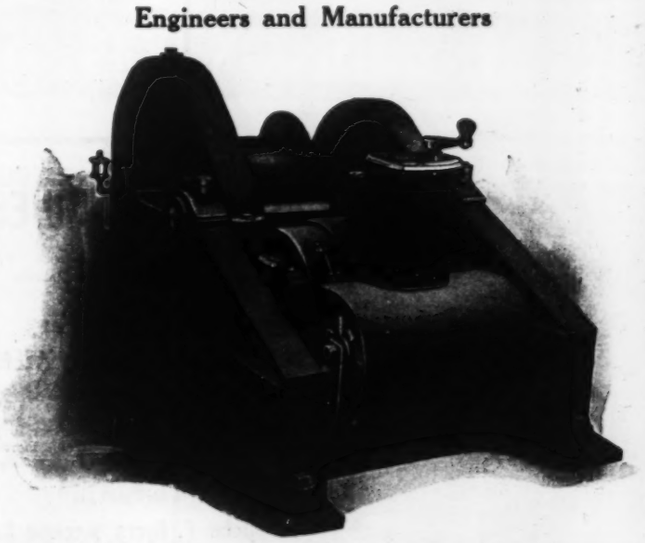

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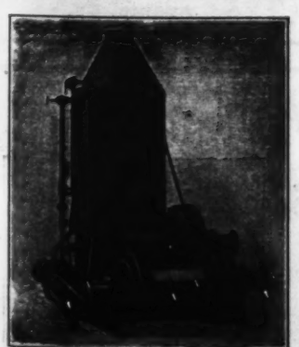

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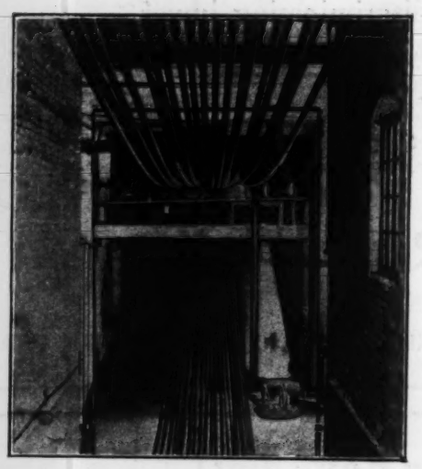

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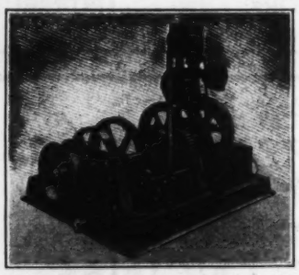

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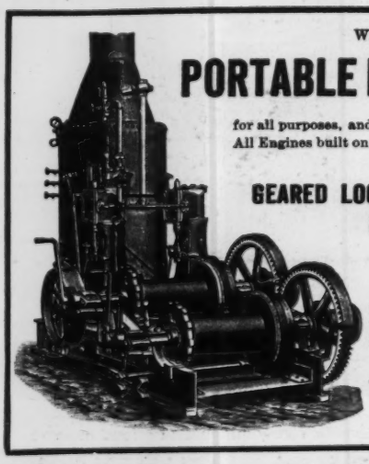

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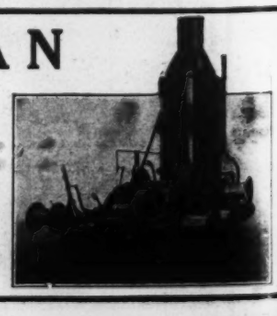

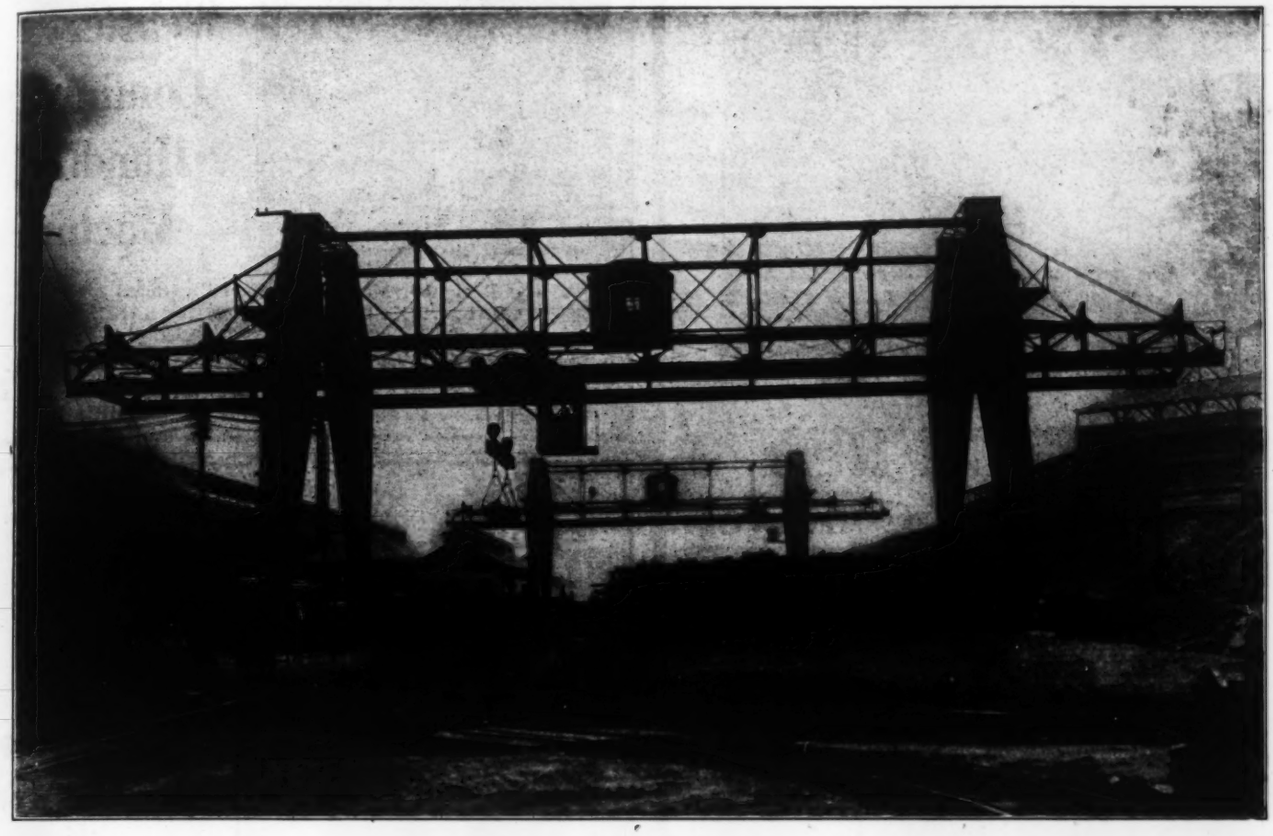

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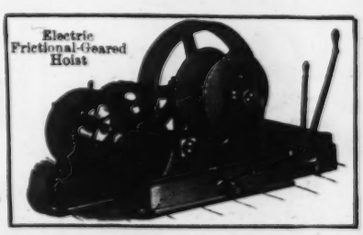

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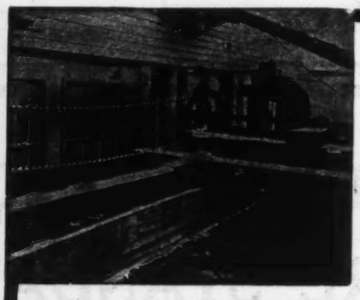

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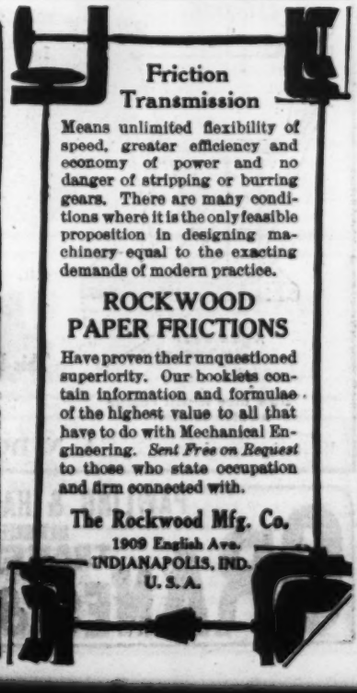

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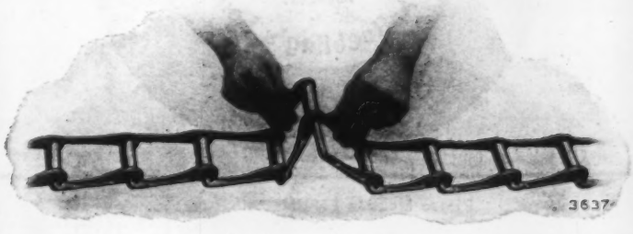

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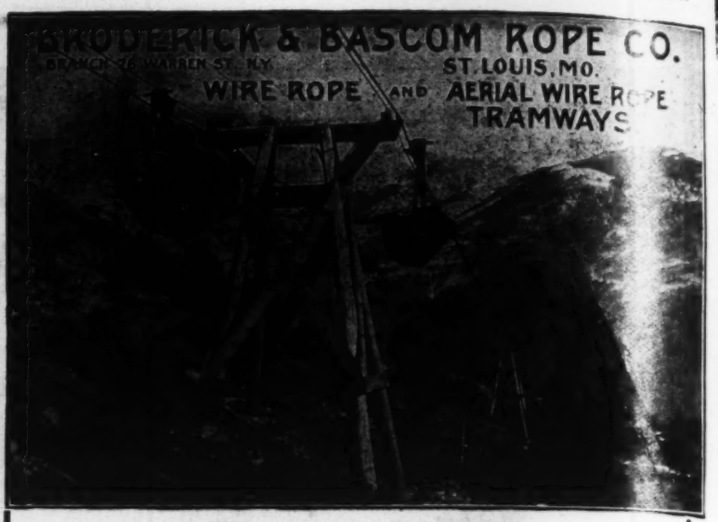

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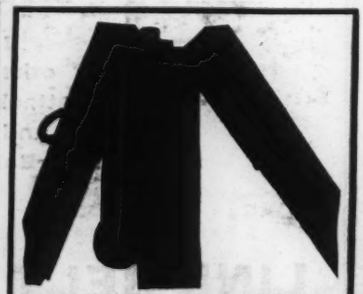

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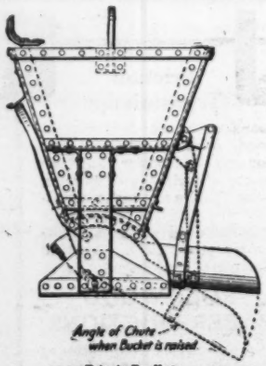

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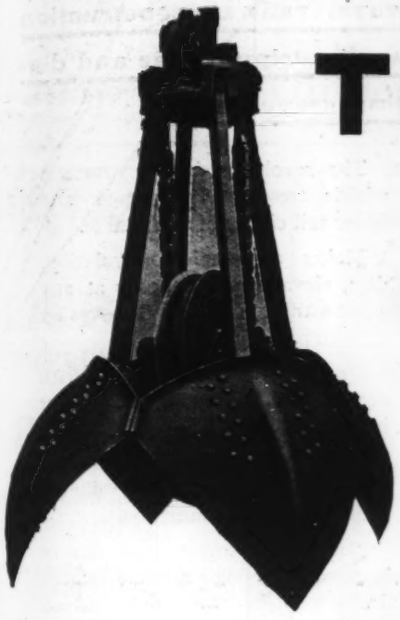

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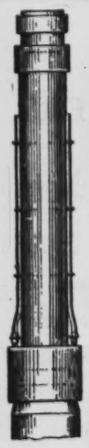

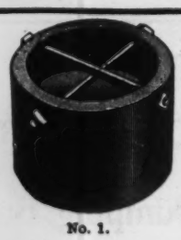

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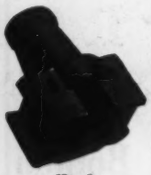

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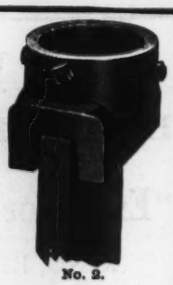

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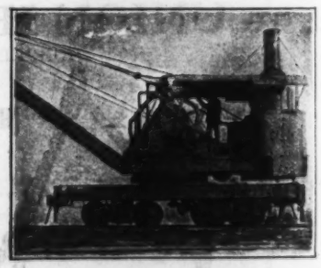

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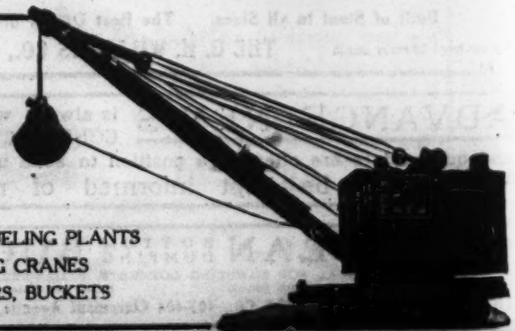

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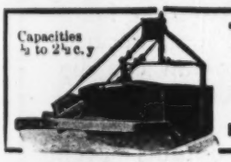

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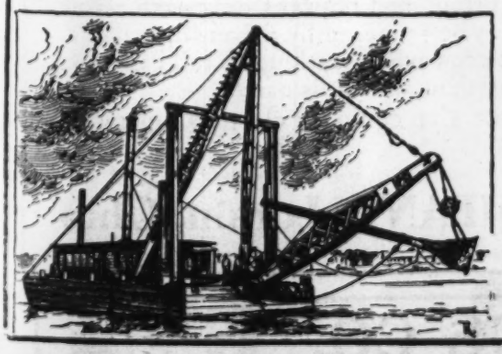

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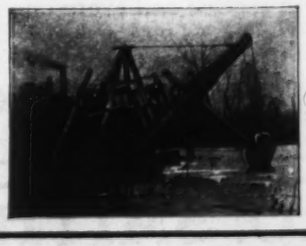

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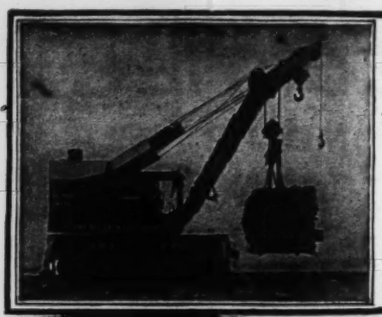

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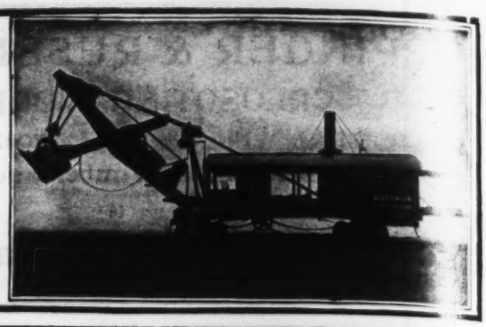

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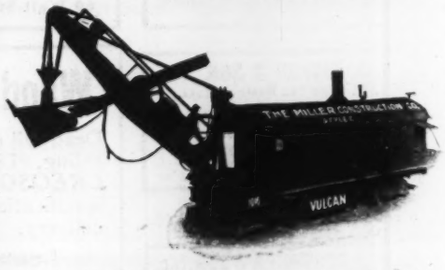

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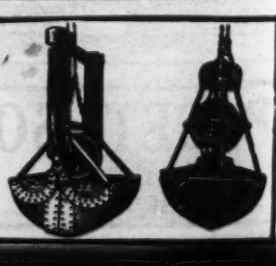

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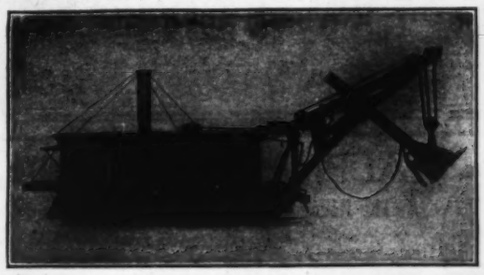

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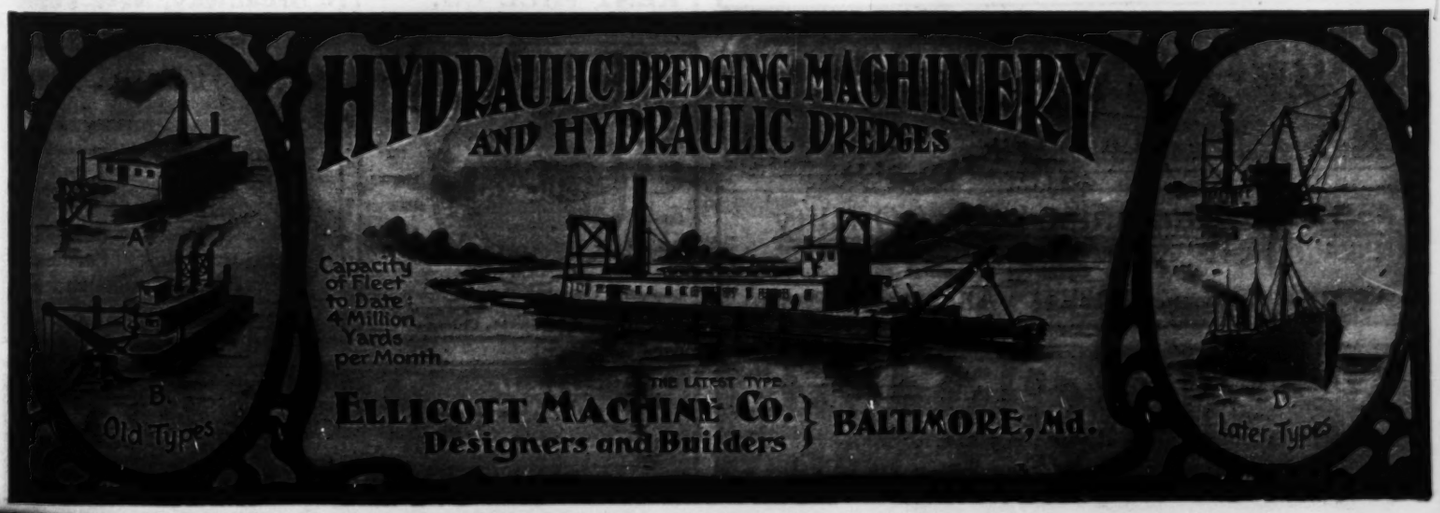

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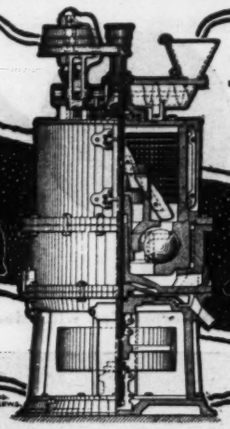

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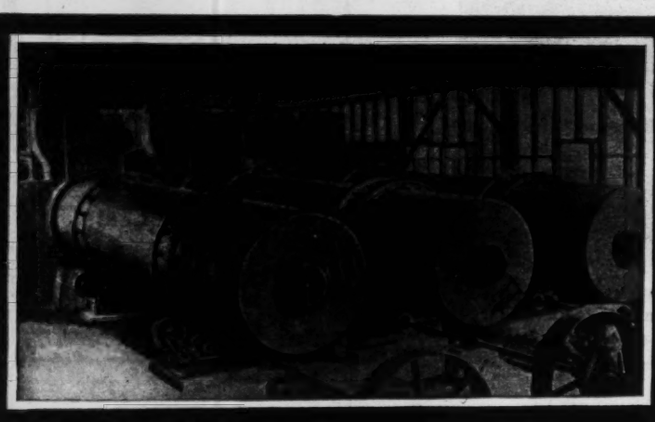

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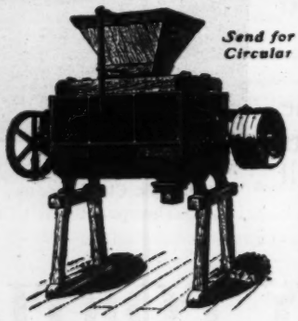

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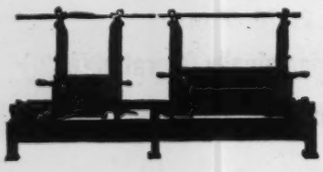

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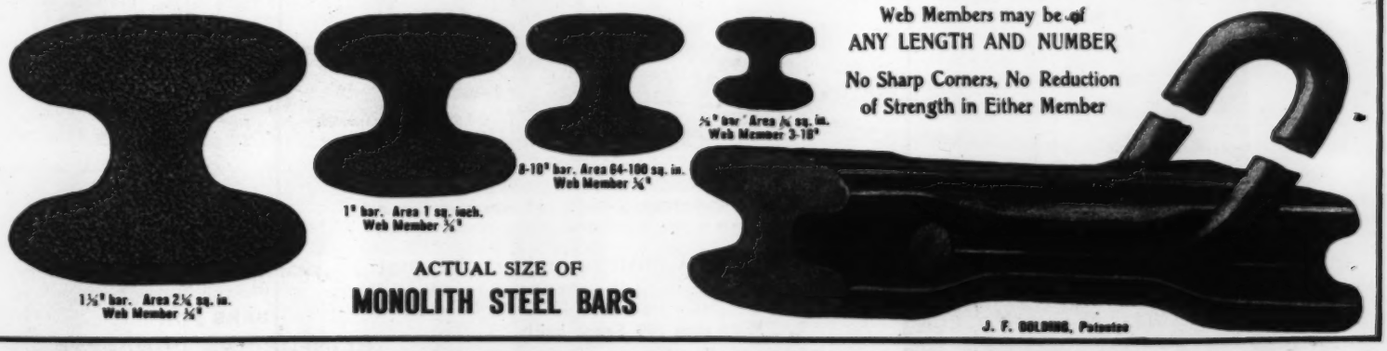
1½" bar. Area 2¼ sq. in. Web Member ¾"
1" bar. Area 1 sq. inch. Web Member ½"
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⅝" bar. Area ⅜ sq. in. Web Member 3-16"
J. F. GOLDING, Patentee

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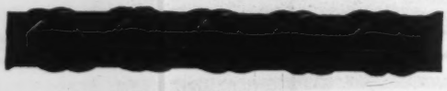

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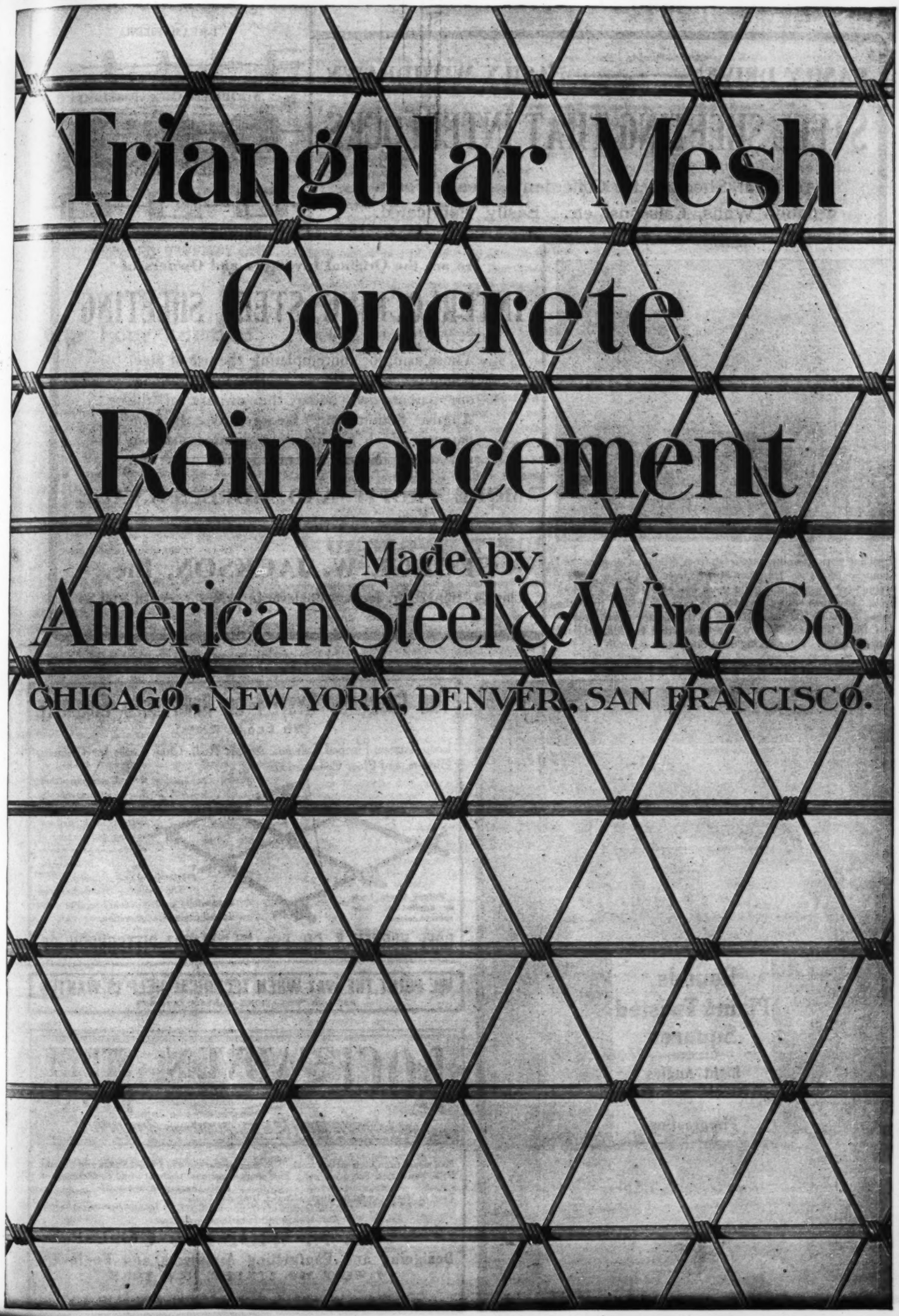
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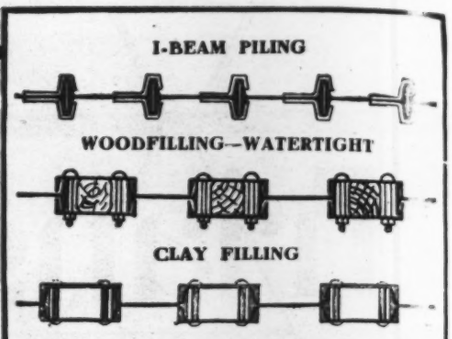

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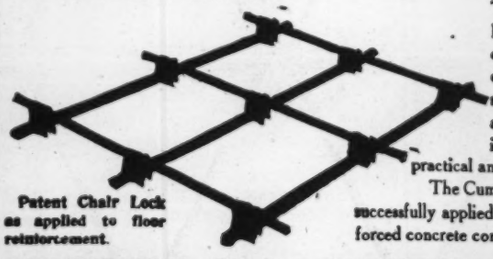

Patent Chair Lock as applied to floor reinforcement.

The Cummings Chair Lock is scientifically designed to guarantee correct and uniform spacing and locking of all crossing or connecting rods. It is simple, practical and easily applied.

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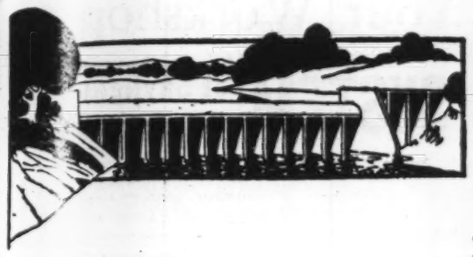

SERIAL NUMBER TWENTY-ONE

Our Four Enemies

Every Constructor of public or quasi-public works is met by four obstacles to be overcome.

The first, strange to say, is his own judgment. Under the fierceness of modern competition a contractor of the old school figured about as follows: If Fortuna had been good to him, he bet on his luck and never figured what the job was *worth*. But he was always mighty careful to figure how much he could *get* for it, and sized up his competitors much more closely than he sized up the job. Sometimes he got a long price, but if competition was sharp down went his bid as low as he dared, so when he made a misjudgment it was necessarily against him and never in his favor, and if he figured too high he lost the work. From the moment the contract was signed he was in a split stick—either obliged to scamp his work or swallow his loss with a grin and a grunt. These same conditions obtain to-day. A man's judgment which enables him to size up the situation and formulate a plan for its development is all too frequently his subtle enemy.

The second obstacle is the labor question. Have you ever heard of a body of laborers coming to the boss to ask for a reduction of wages?—quite the contrary. If the contract is a large and important one and the labor market not well supplied, labor will combine against its employer, and when it has him in a tight place force him to accede to its demands. This condition, like the poor, is always with us.

Third—the weather. Did you ever know of a constructor who based his calculations upon the *worst* weather that he expected to encounter? You know very well, and so does he, that if he figured on that basis he would lose every job. Yet how often is it that the season which was guessed as a good one has turned out bad and hundreds of thousands of dollars lost in consequence.

The fourth obstacle is the possible subsequent rise of price of materials. This is not as important as the preceding and is passed with a caution to note carefully whether the estimate is made on a rising or falling market.

We cite these difficulties in order to show you that we, as experts in our particular line of construction, recognize them; and deal with them as specialists. There are specialists in trolley line construction; specialists in railroads, waterworks, sewage, and every other branch of public work. We specialize on dams—have built over thirty thus far—and this doing of one thing over and over again has taught us how to circumvent these obstacles to a large extent.

First, our judgment. This is not dissipated by engaging in diverse and varied enterprises. On the contrary, it is a concentrated judgment, in one single direction, namely, the control of rivers and their development. As a Company we look upon this problem through four different minds—trained to the hour—to say nothing of most valuable suggestions received from our force in the field.

The business side of the enterprise. This is a consideration squarely up to the President and his advisors. Will the enterprise be a commercial success? Will it pay dividends? Will the investors be glad they went into it, go into others with us and recommend their friends to do the same? If not, then the full weight of our influence is cast against the project and the promoters of the enterprise discouraged if possible. We don't want to be connected with an unsuccessful project even indirectly.

Next, the engineering side. This being basic to our business, the whole wisdom of the primary organization is brought to bear on every point and all problems are weighed, not only with respect to the structure as completed, but with respect to the best methods of completion. Here the engineering department and the construction department find common ground while the work is being committed to paper. Remember, too, that our designing is all along one line; the same men designing and redesigning, improving and polishing, computing and comparing, day in and day out on one thing. Are we not likely to become experts in that particular thing, additionally fortified as we are by the subsequent and most valuable criticisms of the field force who turn our pictures into actualities?

Then comes the construction side. This settles down hard and solid on our General Manager. He has his own corps of assistants and gets himself tremendously disliked if after the plans are approved he comes around the office bothering any of the engineering force with questions which pertain simply to construction. The two don't mix in an executive sense.

So that five different minds are concentrated on every problem, one checking the other, each one's deficiencies supplemented by the expert knowledge of his colleagues, all working in one direction towards dams and dams only. Can you imagine anything more efficient?

Again, labor. We meet the labor difficulty much better than the contractor who does a miscellaneous business. Our men, even the common laborers, become trained in their own line as specialists. They go from one piece of work to another, under the same superintendent, controlled by the same foremen, working with the same comrades, always engaged in the same line of work. Gradually an organization is brought together that likes this Company and its methods, likes its bosses, likes to build dams—and *likes itself*. Did you ever stop and think of this last point? In fact did you ever stop to think of this whole question? If you have not read this paragraph carefully go back and read it over. It boils down to this, that the men who don't like to build dams and who don't like to work for this Company have no place in our organization and disappear by self-elimination. The result is that to-day we have an organization considered by those well qualified to judge as being the best and most efficient working organization ever turned into the field. They have steady work at steady wages, uniform rules, the same bosses and a uniform occupation that becomes a habit. What more efficient method is there than this to meet the difficulties of labor management?

Our worst enemy—the weather. How have we any advantage over any other constructors in this respect?—for the rain falleth alike upon the just and the unjust—rivers will rise and stay not for any. Yet we do have a very great and distinct advantage, to wit: the experience of years in one occupation. In short we *know how*, and our men who are handling the rivers *know how*, and we want to acknowledge that their "know how" is our greatest asset. A general contractor uses his crew one year on a sewer, the next on a railroad, the next perhaps on a building, and by and by a dam. He might build a dam as often as once a year and possibly keep a special superintendent for that purpose. But do you imagine for one instant that he can size up a river and take care of it as well as our own organization, joining the experience of the office to the experience of the field where ten or a dozen superintendents are competing with each other on similar work for the approval of their employers, and the consensus of whose experience is used through the office for the benefit of the individual on every weather problem that arises? Certainly not.

Finally the price of material. Of course we are no better than anyone else in this direction except from one fact that, as a concern highly specialized along one particular line, our trade is ardently sought by every concern supplying material that we use. Our purchasing department always buys as well as the best and not infrequently a shade or two better. And every dollar that we save is *your dollar*.

The meaning and intent of this discourse is to impress upon you that when you want shirts made it is not wise to go to your shoemaker. Every business is to-day more highly specialized than ever—and we are specialists.

Very respectfully,

AMBURSEN HYDRAULIC CONSTRUCTION COMPANY

ENGINEER-CONSTRUCTORS

176 Federal Street Boston

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LA PRELE DITCH & RESERVOIR COMPANY.

This is for the reservoir in a development already otherwise completed on a tract of 40,000 acres in the State of Wyoming under the Carey Act. These securities are so specially safeguarded by law as to stand about on a par with a Municipal Bond in point of safety, while yielding interest better than 6% on the investment, plus a handsome increment value. The Trustee for this security is the Beacon Trust Company, 20 Milk St., Boston. (This underwriting is nearly completed, and an early response is necessary.)

CENTRAL CAROLINA POWER COMPANY.

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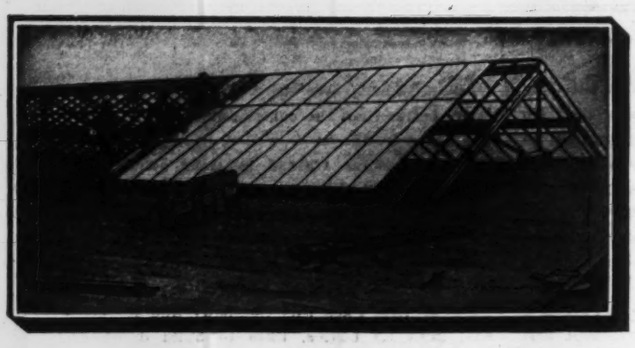

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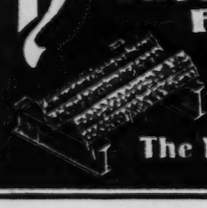

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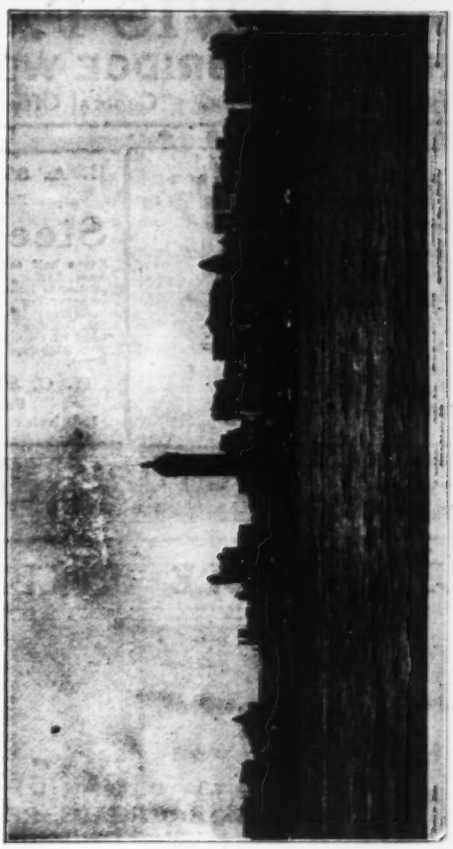

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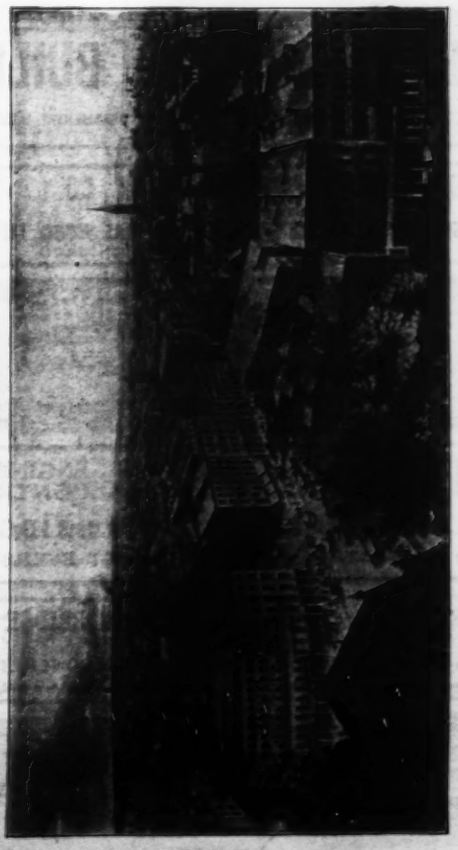

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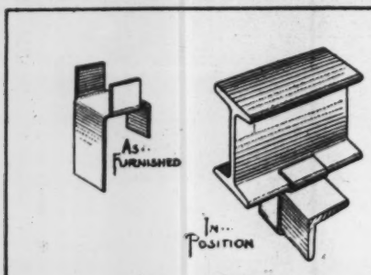

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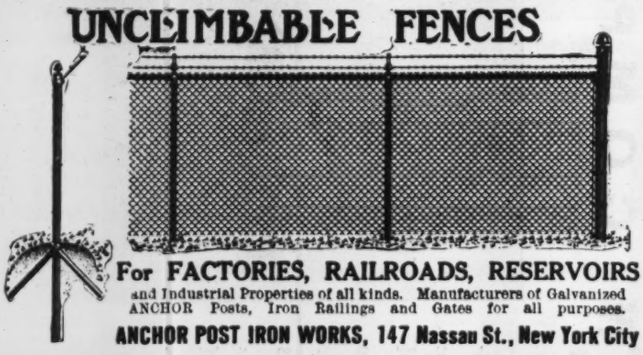

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